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Railway Age Gazette

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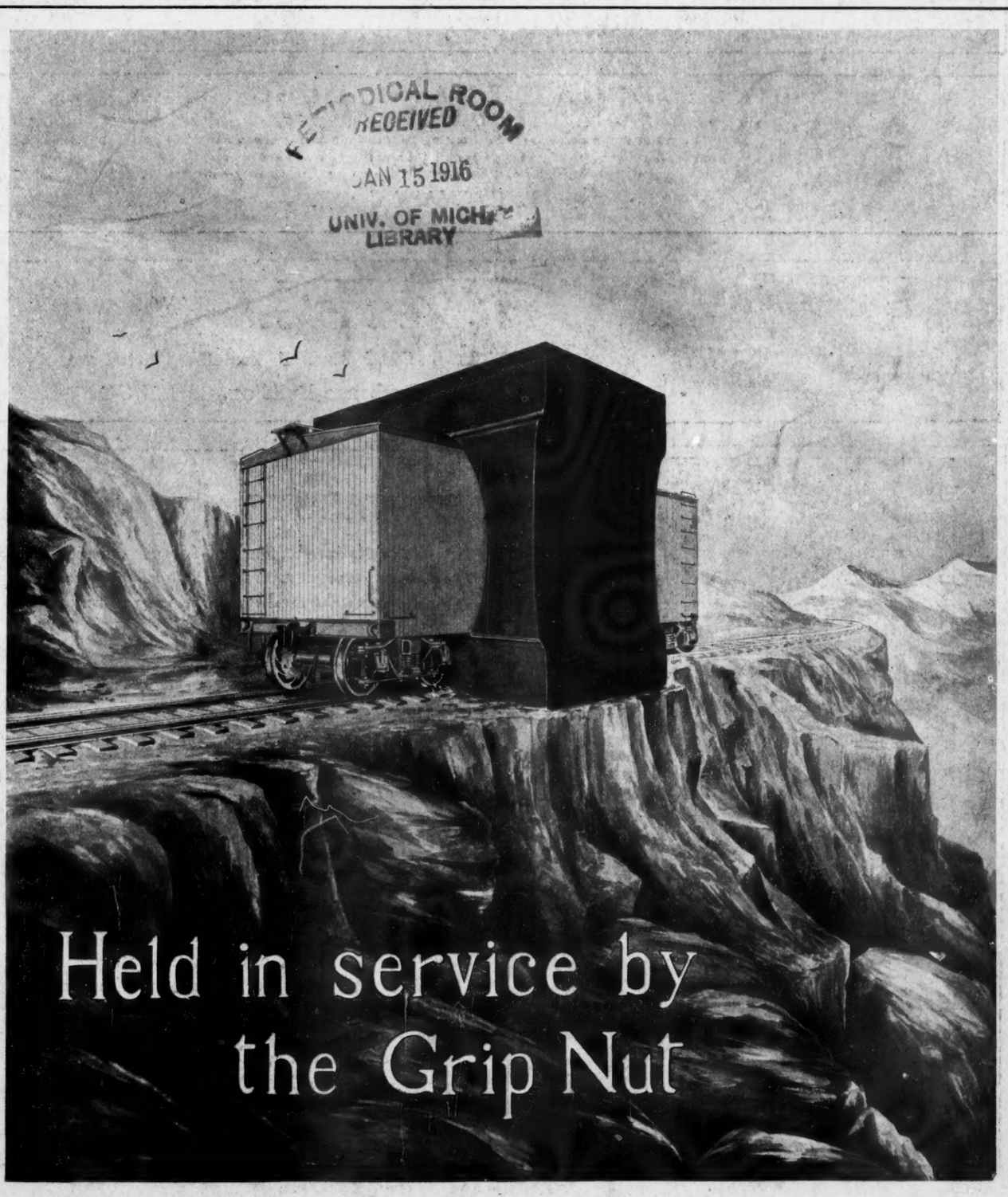

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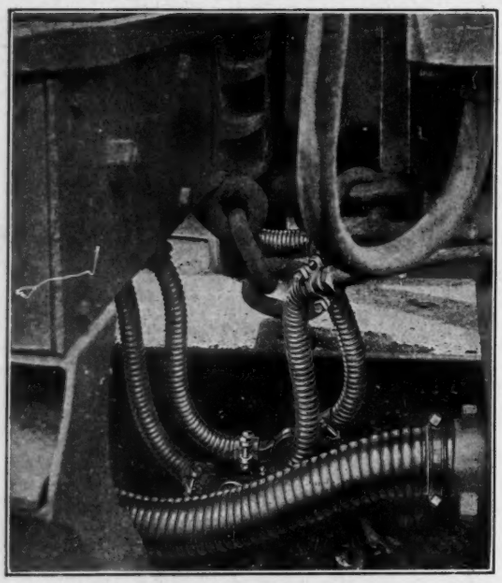

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Railway Age Gazette

Volume 60 January 14, 1916 No. 2

A Slight Exaggeration

In an editorial that is a curious jumble of vilification and grains of truth, the New York Evening Journal attacks the Pennsylvania Railroad's management of the affairs of the Long Island. In the course of this editorial it says: "Long Island Railroad stock, which is now selling at about $25 a share (par value $50), ought to be worth and WOULD be worth within a few years $500 a share and later on ONE THOUSAND DOLLARS A SHARE *if it were the intention of the management to allow the stock buying public any chance for its investment.*" The capitals and italics are the Journal's own. Incidentally, the Journal says that the "Long Island Railroad in some respects has been managed more fairly than many others." The income account of the Long Island, kept in strict conformity with the accounting rules prescribed by the Interstate Commerce Commission, showed a net deficit after the payment of fixed charges in 1914 of $494,000. There is $12,000,000 par value of stock outstanding. To make this stock worth $500 a share the road would have to be earning at least 5 per cent on $120,000,000, or a net income of $6,000,000, which would mean, even if the road were doing a business that could be as economically handled as the freight traffic of the Great Northern, that it would have to earn $30,000,000, or more, gross. It earned $13,220,000 gross in 1914. One would think that a statement such as this by the Journal would be an insult to the intelligence of the least intelligent class which that paper makes a point to cater to. The Journal is a strong advocate of government ownership of railroads.

An Old Old Fiction

The Wall Street Journal maintains a standard of intelligent and disinterested criticism of financial affairs that is unique. Its criticism, therefore, of the sale by the Erie of $20,000,000 4 per cent convertible bonds at 85 deserves consideration. The bonds are convertible between 1917 and 1928 into stock at 50. A bondholder, therefore, who elected to convert his holdings into stock would receive $2,000 par value of stock for every $1,000 of bonds which he held. The Wall Street Journal criticises this as laying the road open to future criticism, with the implication, of course, that it amounts to stock watering. If the par value of stock had any meaning, this criticism might have some justification, but nobody knows better than the Wall Street Journal that the stock of a railroad company or an industrial company represents nothing more nor less than a percentage share in the ownership of the property. It makes no difference how many certificates there are outstanding, since the more there are the smaller percentage each one will represent of the total ownership. Erie stock is now selling around 42. To make it profitable to convert bonds at 85 into stock at 50 the stock will have to sell somewhere in the neighborhood of 60. The Erie is overloaded with debt now. It is generally conceded that one evil of American railroad financing has been the disproportionately large amount of capital which has been raised by the issue of mortgage bonds or other securities with fixed interest-bearing charges. The Erie, more than any other road in this country, ought to raise its new capital through the issue of stock, if that is a possibility. No railroad lawyer will for an instant think of claiming that a railroad company has a right to earn a certain per cent on the par value of its stock. Every argument presented before the Interstate Commerce Commission to show the need for higher rates has in recent years been based on the amount of new money which has been put into the properties of the railroad companies. It is inconceivable that if the Erie is to put about $17,000,000 new money into the property that some Erie counsel will have the audacity to argue at some future date that the company ought to be allowed to earn a fair return on $40,000,000. As a matter of fact, the Wall Street Journal's mistaken editorial and the facts in the Erie case are both strong arguments in favor of issuing stock without a par value, facing the facts as they actually are and accepting the truth that stock represents nothing but a percentage of ownership.

Another Coal Dock

Elsewhere in this issue appears a description of a dock for the transfer of coal from cars to ships. In few fields has more skill and ingenuity been displayed than in the rapid development in docks of this character. Descriptions appearing from time to time in these pages have portrayed this development in a way that could scarcely have been improved upon in a carefully planned series of articles. The improvements can be traced step by step as the various articles appeared. A single influence has brought about all the large developments of this kind—the necessity for a reduction of terminal charges. Increased train loading, through grade reduction, larger power and improved operating methods, has of course, been the largest factor in economical railroading, but with the low rates prevailing in the coal traffic this is not enough, as uneconomical terminal operation quickly neutralizes many miles of cheap haul. Incidentally, competitive conditions have had some influence, for coal-carrying ships are attracted to ports and to docks where cargoes are quickly handled, and a like influence is brought to bear to a lesser extent on other shipping in connection with bunker coal. The elimination of an undesirable low grade of manual labor is also a factor.

Artistic Design of Structures

During recent years a great, and perhaps an unwarranted expense has been incurred to secure pleasing architectural designs for large passenger terminals. At the same time, the structures outside the limits of these terminals have in many cases been severely utilitarian with little or no attempt to secure artistic effects. On some roads, as on the Lackawanna, special attention has been given to the design of the smaller bridges, signal towers and outlying stations to secure attractive appearances, but such practices are the exception. The need for more attention to this subject is being increasingly realized by engineers An interesting illustration is contained in a report made three weeks ago by W. J. Wilgus on the separation of grades on the Belt line at Richmond, Va. In this report Mr. Wilgus suggested that the tracks be partially depressed and that the ex-

cavated material be wasted on the right of way and adjacent property for a distance of 150 to 200 ft. back from the top of the cut to create a natural undulation on each side. These undulations would aid in obscuring the cut and thus improve the landscape effect, and would also provide the approaches for the street bridges without the usual unsightliness of embankments at each end. It is also suggested that the streets be carried across the tracks on flat arches of reinforced concrete with their roughened surfaces covered with vines. In this way Mr. Wilgus contemplates that the objection to partial depression will be eliminated at a cost to the railroads considerably less than would otherwise accrue by complete depression, while the appearances will be materially improved.

PROPOSED DEMANDS OF ENGINEMEN AND TRAINMEN

THE exact terms of the proposed demand that the railways pay their engineers, firemen, trainmen and conductors on time, instead of on the present prevailing basis of 10 hours, as disclosed by the letter ballots which are being distributed this week for a referendum vote of the employees on the question of authorizing the brotherhood officers to present the proposition to the railroads, indicate that the purpose is not primarily to reduce the hours of labor, but to increase the rate of pay for the same amount of work. In other words, after having secured all the advances in wages that it seemed possible to obtain by means of arbitration, the four great railroad labor organizations have combined to seek another large increase in another form by proclaiming their refusal to arbitrate and threatening to call a general strike on all the railroads in the United States and Canada if their demands are not granted.

The provisions of the proposition applying to road service are:

Article 1. (a) In all road service 100 miles or less, eight hours or less will constitute a day, except in passenger service. Miles in excess of 100 will be paid for at the same rate per mile.

(b) On runs of 100 miles or less overtime will begin at the expiration of eight hours.

(c) On runs of over 100 miles, overtime will begin when the time on duty exceeds the miles run divided by 12½ miles per hour.

(d) All overtime to be computed on the minute basis and paid for at time and one-half times the pro rata rate.

(e) No one shall receive less for eight hours or 100 miles, than they now receive for a minimum day or 100 miles for the class of engine used or for service performed.

(f) Time will be computed continuously from time required for duty until released from duty and responsibility at end of day or run.

Article 2 provides that: "Eight hours or less will constitute a day in all yard and switching service. The minimum day's pay for 8-hour yards shall not be less than the present day's pay for 10-hour yards. Provided, that in yards having a minimum day of more than ten hours, the present day's pay as in effect January 1, 1916, will be continued with the 8-hour day."

Article 3 provides that: "Eight hours or less at present ten hours' pay will constitute a day's work in hostling service." Both articles provide that "all over eight hours within any 24-hour period" shall be computed and paid for at the rate of time and one-half time.

Article 4 is a "saving clause" which would enable the men not only to retain any rates or rules now in effect which may work out more favorably than the new rules, but to couple any new rule with the old rates or any old rule with any new rates.

The new plan means a 25 per cent increase in the hourly rate with no change in the present rates per day or per 100 miles besides advancing the time when overtime begins, and increasing the rate for overtime 50 per cent. In fact, the increase as compared with present rates would be 87½ per cent. A man now paid $4.00 for ten hours, or 40 cents an hour, would be paid at the rate of 50 cents an hour under the new rules and 75 cents an hour for overtime. As changing the rate of pay can hardly affect the time required to run a train between terminals, unless the tonnage of the train is reduced, which would require running more trains, it is apparent that the eight-hour basis provided for in these rules is vastly different from an eight-hour working day, as that term is commonly understood and applied in other lines of industry. An eight-hour basis in train service means no reduction in hours of service for most of those who now work more than eight hours a day, any more than it means an increase in working time for those who now complete their runs in less than eight hours. It simply means more pay for the same work, or even in some cases for less work than is now performed.

The proposition does not mean a 25 per cent increase for all train and engine employees because if 100 miles or less are run within the time limit of eight hours, or if more than 100 miles are run within eight hours the rates of pay will be as at present, on the basis of miles or hours, whichever produces the greater amount. But for many employees it means an increase of even more than 25 per cent in pay without any more work. The man whose run now takes ten hours for 100 miles or less, or the man employed in yard, work-train, pusher or helper service who is paid on an hourly basis, at a rate of $4.00 a day or 40 cents an hour, would be paid for eight hours at 50 cents plus two hours at 75 cents, or $5.50, which is an increase of 37½ per cent If his run takes twelve hours he would receive $4.00, plus four hours at 75 cents, or $7.00, instead of $4.00 plus two hours at 40 cents, an increase of over 45 per cent. The man who runs more than 100 miles would receive pay for his full mileage, and if his train made less than 12½ miles an hour he would also receive overtime at a rate 87½ per cent higher than the rate. If he now makes 150 miles in twelve hours or less he is paid for 150 miles, one and a half times the day rate, and under the proposed rule he would receive the same, but if he made less than 12½ miles an hour so that it took more than twelve hours to complete the run, he would receive overtime at the higher rate for all time over twelve hours.

Many of the men in through time freight service and those having short runs, would not be affected. How the plan would work out in yard and hostling service would depend on local conditions, but the proposed rules would absolutely prohibit working a man for more than eight hours except at time and one-half. If a man who had worked eight hours and had been released should be called again and worked for two, three or four hours within the same 24-hour period he would, under the wording of the rules, have to be paid for a second full day of eight hours at time and one-half. Either the men would have to be paid a large advance in the form of overtime or more men would have to be employed. In some yards that are now worked in two shifts of twelve hours, and where the rate of pay is therefore higher than in 10-hour yards, the men would have to be paid the same rates for an 8-hour day and they would therefore receive more than the men now working on a 10-hour basis.

It will be noted that the brotherhoods have dropped the plan of asking an increase for employees in the passenger service. In view of the fact that the hours of work in passenger service are now considerably less than in the freight service, and especially in view of the high earnings of employees in passenger service shown in the recent western engineers' and firemen's arbitration case, it is not surprising that the new campaign should be confined to the freight service, but even in the case of the freight men it will be difficult to show any changed conditions justifying rates of pay higher than they are now receiving as the result of recent arbitrations.

As to the proposed demand for time and one-half for overtime the situation in railroad service, with its dual standard of payment for miles or hours, is not at all comparable with that in the industrial field. The railroad engine or train man is guaranteed payment for a full day and is assured payment for more than a minimum day if he either works more than ten hours, regardless of his mileage, or if he runs more than 100 miles regardless of the time required. The industrial worker ordinarily does not earn a day's pay unless he works a full day and usually cannot make more than a day's pay without work-

ing outside of his regular hours. In railroad service overtime cannot be controlled to the same extent as in industrial work. If a train movement is not completed within the time limit the train cannot be left standing where it is. Under the proposed rules the crews would have to be paid for the additional time at penalty rates, or if the regular men were relieved by extra men the latter would have to be paid a full day for a few hours' work.

The proposed demand has the virtue of presenting a single clear-cut issue as to whether or not the highest paid classes of railroad employees are entitled to still more money for the service they render. The issue is so specific that the railroads can give but one answer to the demands unless the public should signify in some way that it is willing to pay more for railroad transportation. In previous wage controversies the employees have usually asked not only for higher rates of pay, but for so many complicated changes in working conditions which would effect additional increases in pay, that it has been imposible for the public to understand the points involved. As any further increases will have to be paid by the public in the end and as the entire public would be affected by a strike, it is well that the issue should be one that can be readily appreciated. It would seem to be only necessary for the railways to show what wages the men are now receiving to convince the public that a limit has been reached unless the rates from which wages and all other expenses must be paid are to be greatly increased.

In the event of a general strike the public might like to know that the business of the country was being stopped for the purpose of increasing the pay of engineers who, according to the Interstate Commerce Commission reports, in 1914 averaged $5.24 a day; conductors who received an average of $4.47 a day; firemen who received an average of $3.22 a day, and other trainmen paid an average of $3.09 a day.

TERMINATION OF THE NEW HAVEN TRIAL

AFTER a trial of 55 court days, D. Newton Barney, Robert W. Taft, James S. Hemingway, A. Heaton Robertson, Frederick F. Brewster and Henry K. McHarg have been acquitted of conspiracy to establish a monopoly of transportation facilities in New England under the criminal clause of the anti-trust law. The jury disagreed in the case of William Rockefeller, Charles F. Brooker, Charles M. Pratt, Lewis Cass Ledyard and Edward D. Robbins, who were co-defendants with the men acquitted. The 11 men who were made defendants in this suit by the federal government were directors of the New York, New Haven & Hartford for varying periods during the time which the government claimed the New York, New Haven & Hartford had been engaged in attempting to build up a transportation monopoly.

The array of counsel engaged by the defense assured the application of the best legal talent to the problem with which it had to grapple. The difficulties of the defense, however, were in the nature of a dilemma. The technical points involved were so numerous and so complicated as to necessitate a great volume of evidence, which would be largely in the nature of an education of the jury in the fundamental principles of railroad development, finance and rates. On the other hand, an attempt to elucidate the whole subject so as to make it thoroughly understood by 12 men of varying mental capacity and degrees of power of analysis would have consumed an almost interminable time.

In criminal cases generally juries can apply to the evidence submitted a common knowledge of probabilities, common practice, accepted morality, etc., which in the New Haven trial would have corresponded to a fairly broad experience in railroad rate making, finance and development. That the counsel for the defense did not wholly succeed is evidenced by the disagreement as to five of the directors. The government, however, with the aid of the prejudice created against the New Haven by investigations, accidents, and the company's own foolish attitude toward the public under the Mellen regime, failed utterly to convict a single one of the 11 defendants. If there is to be any good come from this long drawn out expensive trial it will be in a more general understanding by the public of the nature of the railroad business. If this better understanding were to take concrete form in an amendment to the anti-trust law, which would specifically permit the agreements between railroad companies that are tacitly being made everywhere, and which are absolutely essential in regard to uniform rates, the time and money spent on the New Haven trial will have been well spent.

GOOD SERVICE AT HIGHWAY CROSSINGS

A RAILROAD officer at Ft. Worth, Tex., who says that he voices the views, opinions and demands of automobilists, calls attention to the desirability of uniform regulations for the conduct of flagmen at highway crossings. Motorists complain, through automobile publications and otherwise, that at many crossings the signals given to wayfarers are uncertain or indistinct. Some flagmen wave their flags with a beckoning motion to hasten the passage of cars across the track; some do one thing and some another, so that drivers are often in doubt. It is suggested that when no train is approaching the red flag should be kept out of sight; that when displayed to stop street traffic, it should be waved across the street; that when there is no traffic on the railway and the flagman is resting, he should still be in sight, so that drivers could see that he was on duty; that, perhaps, there ought to be a signal on a post, such as is now used at crossings in busy city streets, by which the attendant could signal drivers not only when to stop, but when to proceed, and that railroad officers should take a more active personal interest in this subject. It is declared that the dull-minded flagman whose work is performed in a very perfunctory and careless manner, so that he is not much protection either for the railroad or the highway traveler, is far too frequently met with.

These complaints and suggestions are in the main well grounded. That rules, where prescribed, are not always enforced in a business-like manner, and that many crossing attendants either use their own judgment in giving signals or lazily exercise no judgment at all, are facts only too well known. The critics have touched the three cardinal points of the subject: adequate rules, competent officers to enforce them and men with some brain power to carry them out. Taking these in reverse order, and considering the mental ability of the watchmen, the obvious thing to be said is that regular supervision, by a high-grade supervisor, is always essential; this for the reason that watchmen are so generally recruited from the ranks of crippled employees. As long as the first reason for appointing a man is to give him employment because of physical disability, the question of his mental competency being made secondary, a force of a dozen or a hundred watchmen will be sure to include an extreme variety of personal fitness for the duties to be performed. To secure uniform, or approximately uniform, conduct will always be a problem.

And even if we can suppose the cripple question eliminated, the low rate of pay that generally prevails will still insure the supervising officer a permanent job, and plenty of work, if he aims to secure the best service. The question whether a higher grade of men ought to be employed is a difficult one. Every superintendent is familiar with the case of the man who proves too dull for even the simple duty of flagging, and who has to be dismissed or assigned to other duties; but if men of much better ability were employed they would soon tire of such a humdrum job and would quit the service. One of the public service commissioners of New York recommended recently the shortening of flagmen's work days to eight hours and the advance of the minimum rate of pay to $2, or about twice as much per hour as the road in question was paying. This commissioner, however, is a politician, not an economist, and there has been no announcement of the endorsement of his recommendation by a majority of his colleagues. The railway manager, if governed

wholly by his heart and not by his head, would gladly pay 25 cents an hour; but, as a rule, such a rate would be out of all proportion to what the men could earn at other kinds of work.

First-class supervision of flagmen is important because the crossing watchman's work requires an alert mind in a situation where the surroundings are mostly very depressing. At the great majority of crossings there are such long intervals between the times when vigilance is demanded that even a bright mind needs some outside influence to keep it bright. Where the watchman reports to and receives orders from the track repair foreman, a general supervisor of watchmen—who must instruct as well as supervise—is particularly necessary, because the section boss is not always a good instructor. His teaching ability is exercised mainly with men who are working under his own eye; to give effective instruction concerning work to be done out of the instructor's sight is another matter. At the Safety-First convention in Philadelphia, last September, the representative of a prominent road recommended the employment, on large systems, of a supervisor of crossing watchmen who should devote his whole time to that work. Such a supervisor ought to develop the "state of the art" to a high degree of perfection, and there is no doubt that such development is everywhere desirable; but it is questionable whether the trainmasters, with suitable help and suitable backing, could not do about as well. There is an advantage in knowing your men, and an officer who did nothing but supervise crossing work would have a pretty large territory. Could he not do more good by educating trainmasters to do the work?

Our correspondent asks for uniform rules. These need not be elaborate. As already suggested, the problem is to secure obedience to them. The Central of New Jersey, which, a year and a half ago, adopted the use of disks, lettered "STOP," in place of flags, has a code which has been found very satisfactory. It provides that crossing watchmen shall report to and receive their instructions from section foremen; shall keep a time table; shall co-operate with trainmen for safety when switching is being done at or near the crossing; shall display to travelers on the highway a standard red disk (lettered in white) by day and a standard lamp (showing red on the highway and dark along the line of the railway) by night, to give notice of the approach of trains; shall use the regular red signals when necessary to stop a train, and keep such signals out of sight when not in use; must report trains that block the crossing; must not read while on duty, and must keep their watch boxes clean. Other rules in this code are similar to those generally in use. Where there are gates the disk and the two-sided light are attached to the gate.

The significant feature of these rules is the requirement that the disk shall be used. The substitution of this for the flag answers some of the criticisms noted at the beginning of this article. It simplifies the flagman's job, as he has no fear of deceiving enginemen with a false stop signal. As to beckoning drivers on the highway to come on (when the way is clear) that is forbidden. Railroad officers do not look with favor on the practice of giving proceed signals. If uniformity of practice is to be sought, the absence of any signal would be the normal proceed indication, for at many crossings there are long periods of time, perhaps hours, when no train appears. At the same time the traveler may legitimately demand that the watchman's cabin shall have windows so arranged that the attendant may be seen, giving assurance that he is on duty. It is also legitimate to ask that he wear a cap, or badge, or uniform, so that he can be distinguished quickly from bystanders. The watchmen on the Central of New Jersey are now supplied with mouth whistles, like those used by policemen, for getting the attention of careless drivers.

The Long Island, which has perhaps the most difficult crossing proposition in the country, also uses the disks, and with great satisfaction. The New York Central also has made extensive experiments with them and has lately put in use 100 disks which are oval instead of round, and have red letters on a white ground instead of white on red. Trial is being made, also, of hand lanterns with a red face-glass, flat, about 15 inches in diameter, with the word "STOP" on it, in white letters.

EDUCATION AND THE RAILROADS

ADVERSE legislation, from which the railroads have suffered so severely during the last few years, is largely the result of popular prejudice; of the several influences which have brought about this state of mind on the part of the public, ignorance unquestionably plays no small part. Misrepresentation on the part of the demagogue and the inaccuracy and superficiality of magazine and newspaper articles are no doubt in part responsible for this condition. It would also seem that our public school system is partially at fault, because from the time of our earliest railroads they have been given little or no part in our scheme of education. In fact, there would almost seem to be a conspiracy of silence against them.

Most of us will recall that we were taught (we probably have forgotten it) that Springfield, the capital of Illinois, is on the Sangamon river, and that Raleigh, the capital of North Carolina, is located on Crab Tree creek. Even in the school geographies of recent publication we find such statements as: "Pittsburgh is located where the Allegheny and the Monongahela rivers unite to form the Ohio. Pittsburgh has extensive water connections," and "Richmond, Va., is located at the head of navigation on the James river." Very often the railroads are omitted entirely from the maps in geographies, though the Erie canal is always shown clearly, and similarly the names of individual railroads are almost never mentioned in the text. School histories give scant space to railroads outside of reference to the introduction of steam railroad transportation and perhaps the completion of the Union Pacific.

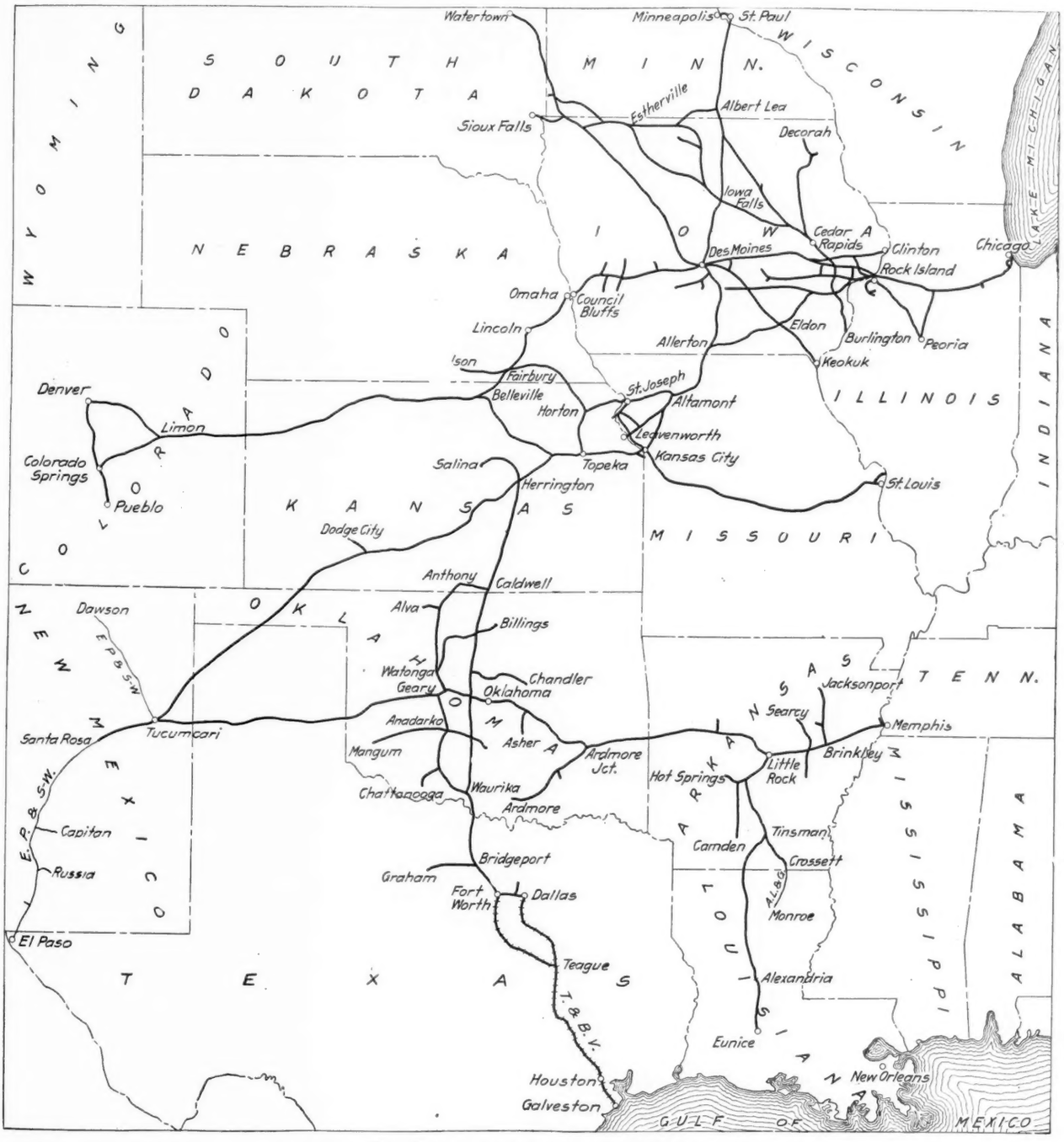
Surely, the Chicago & North Western and the Chicago, Milwaukee & St. Paul are of sufficient social and economic importance to deserve as much notice as the Wisconsin river. The fact remains, however, that the public really knows very little about the railroad systems. How many Bostonians, not directly or indirectly concerned with transportation, know anything about the Frisco System? How many Chicagoans know where the Norfolk & Western runs, or ever heard of the Virginian? These matters are, of course, of little importance in themselves, but indicate that the average citizen's knowledge of railroads consists solely of what he learns as a passenger or a shipper. He knows of a railroad only as it affects his interests or his comfort. He is either uninformed or misinformed concerning the problems and difficulties of railroad finance and operation and until he can be brought to appreciate these things the railroads will fare badly at his hands.

CHICAGO, ROCK ISLAND & PACIFIC

THE Chicago, Rock Island & Pacific's annual report for the fiscal year ended June 30, 1915, includes only two months of operation under the receivership. Taken of itself, therefore, it throws comparatively little light on the possibilities of what may be done under new management. Operating 8,330 miles of line in 1915, as compared with 8,205 in 1914, the road earned $70,948,000 revenue, an increase as compared with 1914 of $2,272,000, or 3.31 per cent. Expenses amounted to $53,522,000, an increase of $1,886,000 over the previous year, or 3.65 per cent. All of this increase was in maintenance of way and maintenance of equipment, transportation expenses amounting to $29,107,000, a decrease as compared with the previous year of $293,000, or a little over 1 per cent. In contrast to this there was an increase of 6.62 per cent in the ton mileage, the total in 1915 being 6,459,713,000, and a decrease of but 2.44 per cent in passenger mileage, the total in 1915 being 956,122,000. Transportation expenses amounted to 39.62 per cent of total operating revenues in 1915 as against 41.35 per cent in 1914.

Operating income amounted to $14,040,000, an increase of

$336,000 over the previous year. This would be 7 per cent on $24,078 per mile of line. Rental from equipment and from joint facilities and other miscellaneous income brought in an additional $1,368,000, making a total income of $15,408,000. Interest charges and rentals which the Rock Island paid other companies amounted to $16,142,000, so that there was a deficit of $735,000 from the year's business. Interest and rental charges were



The Chicago, Rock Island & Pacific

Chicago, Rock Island & Pacific Railroad (Iowa company) bonds, $3,730,000 advances to the Trinity & Brazos Valley, and $2,696,000 advances to the Consolidated Indiana Coal Company. The book value of other assets was written down by $4,848,000. Whereas the company at the beginning of the year had a book credit to profit and loss of $8,734,000, on June 30 there was a debit to this account of $12,531,000. Further than this, there was $3,154,000 more than in 1914, the principal increase being $476,000 interest on funded and unfunded debt.

At the end of the year the company had $3,290,000 cash, with $4,100,000 loans and bills payable. Total current liabilities amounted to $17,236,000 as compared with $13,943,000 at the end of 1914.

There was a drastic recasting of the profit and loss account, $13,680,000 being written off as worthless. This included $5,961,000 which the accountants who examined the books thought ought to have been charged off through profit and loss for depreciation, but which was not so charged.

The increase in revenue was due to an increase in freight tonnage. The total tonnage carried in 1915 was 22,521,000, an increase over 1914 of 1,032,000. The tonnage of wheat in 1915 was 2,254,000, an increase of 1,269,000 tons, or 129 per cent. While the tonnage of manufactures and of other articles fell off,

it was not to the extent that has been shown by the great majority of other roads west of Chicago, and certainly does not compare with the great falling off shown by roads east of Chicago. The average revenue per ton per mile was exactly the same in 1915 as in 1914—8.7 mills.

Any appeal to investors for new money to be put into the Chicago, Rock Island & Pacific will have to be based on the assumption that the 8,330 miles of road is capable of earning a very considerable net profit instead of the deficit shown for the fiscal year ended June 30, 1915. The increase in net available for dividends might be the result of increased gross without correspondingly increased expenses, decreased expenses without a corresponding decrease in gross, or a scaling down in fixed charges, or some combination of these three possibilities. A scaling down in fixed charges could only be accomplished through a property loss on the part of investors who have put their savings into railroad securities.

An increase in gross over a series of years may be pretty certainly counted on as a result of the development of the territory served. Another method of obtaining increased gross would be to obtain an increase in rates.

The Rock Island has suffered from not having enough money spent on it. The report which has recently been made by J. W. Kendrick places the amount which should be spent between June 30, 1915, and June 30, 1919, for additions and betterments to the property at $27,204,000. The largest single item in the estimate is $6,008,000 for grade revision, new lines, sidings and second track. It may be recalled that in the comments in these columns on the annual report for the fiscal year ended June 30, 1914, it was pointed out that the expenditure for grade revision was conspicuously lacking in the summary of improvements which had been made since 1902. There are four other items in the Kendrick report on which it is estimated that more than $3,000,000 should be spent. These items are improvements to existing equipment, ballast and bank widening, tie plates, and track elevation and grade separation. Making an allowance for the fact that there is no railroad so good but what an expert like Mr. Kendrick could go over it and find places where more money ought to be spent, the estimate of over $6,000,000 for grade revision and second track, $3,442,000 for improvements to existing equipment, and $3,587,000 for bank widening and ballast is a pretty severe criticism either of the Reid-Moore management's ability to raise new money or of the policy in spending what there was to be spent for improvements. The three items named are those that directly affect transportation and maintenance economies.

Mr. Kendrick estimates that if the $27,304,000 is spent in the way his report calls for, there would be a saving in the year ended June 30, 1919, of $5,050,000 in expenses. By this he apparently means that the operating ratio in 1919 will be enough lower than it was in 1915 to make a difference in net of $5,050,000.

Thus, in 1915 total operating revenues amounted to $70,948,000. The Kendrick report takes $74,550,000 as the probable operating revenue in 1919. In 1915 total operating expenses amounted to $53,522,000, and the Kendrick estimate for the 1919 expenses is $50,918,000. Thus, the operating ratio in 1915 was 75.44 per cent and the Kendrick estimate for 1919 is 68.3 per cent. Grade revision directly affects trainloading. The Kendrick report recommends the expenditure of $1,000,000 for new freight locomotives in addition to the amount to be spent on old equipment. New power may also help the trainloading, although former President Mudge probably went about as far as was possible in bettering trainload through the introduction of heavier locomotives. The average trainload in 1915 was 321 tons, comparing with 306 tons in 1914. There is in the Rock Island System many hundreds of miles of line on which heavier trainloading is neither a question of grade revision nor of heavier power, but of the operating and traffic conditions. On the other hand, there are at least three routes in the system which may properly be called main line.

The Rock Island has a line from Chicago to Colorado. At present this line is getting but a meagre share of the Colorado-Chicago business. Another through route is the line from Chicago to Santa Rosa, N. M., from whence a connection is made with the Southern Pacific via the El Paso & Southwestern, which gives a route to southern California. A third is the line from Omaha, Neb., and Kansas City, Mo., to Dallas, Tex.

The details of the Kendrick report have not been made public, but apparently no suggestion is made toward the elimination of the present expensive line which the Rock Island has between St. Louis and Kansas City. This line has been a drain on the system's resources almost ever since it was bought.

There is another point which should be considered. The Rock Island's financing in the past has cost it very considerably more than it should have. If the company's immediate needs can be financed through the issue of 6 or even 7 per cent preferred stock sold at par, without too heavy a commission to the underwriters, a comprehensive scheme can, it would seem, be worked out by which the future needs of the company for new capital can be met in a very much less expensive way than has been resorted to in the past.

The success with which the Rock Island situation can be worked out depends, as does also the success of the Missouri Pacific, the Frisco and of such roads as the Chicago Great Western, very much on the attitude of the Interstate Commerce Commission and the state commissions toward adequate rates.

The table shows the figures for operation in 1915 and 1914:

	1915	1914
Average mileage operated	8,330	8,205
Freight revenue	$47,576,668	$44,333,447
Passenger revenue	18,230,101	18,829,816
Total operating revenues	70,947,890	68,675,842
Maintenance of way structures	9,468,977	8,945,682
Maintenance of equipment	11,807,657	9,951,590
Traffic expenses	1,877,152	1,924,349
Transportation expenses	28,107,247	28,400,530
Miscellaneous expenses	534,398	586,425
General expenses	1,763,925	1,827,244
Transportation for investment—Cr.	37,740	.....
Total operating expenses	53,521,615	51,635,820
Taxes	3,353,919	3,315,632
Operating income	14,039,895	13,703,752
Gross income	15,407,811	15,539,962
Deficit	734,677	*450,621

*Surplus.

NEW BOOKS

Practical Applied Mathematics. By Joseph W. L. Hale, Associate Professor of Engineering, Pennsylvania State College. Bound in cloth, 206 pages, 4½ in. by 7 in. Illustrated. Published by the McGraw-Hill Book Company, Inc., New York. Price, $1.00.

This book is by the author of "Practical Mechanics and Allied Subjects" and, like that book, is intended to meet the requirements of railway shop apprentice schools, trade schools, etc. No formal distinction has been made between the various branches of elementary mathematics involved, although care has been taken to secure a logical arrangement of the material for the purpose of the volume. The book is elementary, the first chapter dealing with the simple processes of addition, subtraction, multiplication and division. Succeeding chapters take up common fractions, decimals, percentage, ratio and proportion and measurement, and a number of chapters are devoted to mensuration. The use of simple equations and the binomial are also explained. Each chapter is intended to completely cover a definite subject and to be in a large measure independent of the others, which affords considerable flexibility in the assignment of work. The problems included show the application of the principles to practical shop work.

Synopsis of Decisions and Recommendations Relating to Special Accounts. Revised by the secretary and published by the Association of American Railway Accounting Officers, Washington, D. C. Price, 75 cents.

This synopsis covers the decisions and recommendations made by the Association of American Railway Accounting Officers in regard to passenger accounts from July, 1888, to April, 1915. The decisions and recommendations have been carefully and logically arranged, each decision or recommendation carrying a reference line to the original document in which it appeared. In addition, however, to the logical arrangement of the text, there is a very comprehensive index. This adds immensely to the value of the work. The book is substantially bound in cloth.

The Railway Traffic of the Chicago Terminal

Statistics Compiled by Electrification Committee on Magnitude and Growth of Freight and Passenger Business

One of the most comprehensive and accurate studies of the railway traffic of a large terminal ever made is that included in the recent report of the Chicago Association of Commerce Committee of Investigation on Smoke Abatement and Electrification of Railway Terminals. An abstract of the report was published in the *Railway Age Gazette* of December 3, and other articles dealing with various phases of the investigation have been published in the issues of December 10, 17 and 24. As Chicago is the greatest railroad center in the world some extracts from the statistical information presented in the report showing the magnitude and the development of the freight and passenger traffic in the Chicago district should be of interest.

The railway traffic of Chicago is handled by 38 steam railroads, including 23 trunk lines handling both freight and passenger service, 10 switching or belt lines and 5 industrial railroads. Over 1,600 industries have track connections with these railways, and the total track mileage in the Chicago terminal district is 3,987 miles. These and other figures used in the report are for the year 1912, which was the statistical year on which all of the investigations of the committee were based.

The average mileage of main track and sidings per square mile in the Chicago terminal district in 1889 was 3.48; in 1903, 6.72; in 1912, 9.3. This is an increase from 1889 to 1903 of 93.1 per cent; from 1903 to 1912 of 38.5 per cent, and from 1889 to 1912 of 167.1 per cent.

The extent and character of the railroad terminals of Chicago have in the past been subject to constant changes to meet the requirements of a community subject to a remarkable rate of growth in population and in commercial and manufacturing activities. These changes have been manifested by a steadily increasing mileage of track and by an increase in the number of passengers carried, and in the tonnage of freight handled.

For the purpose of estimating the cost of electrification, it was necessary to formulate a prediction as to the nature and extent of the activities of the railroads of Chicago at the time of the assumed completion of the work in 1922. For this purpose a study was made of the rate of growth during the 10-year period prior to 1912. In 1889 the total mileage of railroad track within the area of investigation was 1,493.74 miles, in 1903 it was 2,879.82 miles, and in 1912, 3,987.58 miles. From a study of the various factors which had affected the mileage in the past, it was estimated that in 1922 the track mileage owned by the railroads would be 30.8 per cent greater than in 1912, or 5,220 miles.

Facts relating to operation and to the movement of traffic were obtained from reports submitted by the railroads on special forms prepared by the committee after consultation with representatives of the various railroads. The total figures are based on the information gathered during selected observation periods, including one week in January, March, May, August and October.

The number of through and suburban passengers and of weekday through and suburban passenger trains with the percentages of increase from 1903 to 1912 for the 25 railroads in Chicago handling passenger traffic are shown in Table I, which also shows the tons of L.C.L. freight and the freight cars handled by each road in the Chicago terminal district for the year 1912, with the percentage of increase.

TABLE I—CHICAGO RAILWAY TRAFFIC IN 1912

Railroad	Average Number Weekday Through Passenger Trains		Average Number Weekday Suburban Passenger Trains		Through Passengers			Suburban Passengers			Tons Freight Handled Through Freight Houses		Freight Cars Received and Forwarded	
	1912	% Increase 1903-1912	1912	% Increase 1903-1912	1912	% Increase 1903-1912	% of Total	1912	% Increase 1903-1912	% of Total	1912	% Increase 1903-1912	1912	% Increase 1903-1912
A. T. & S. F.	16	23.1	..	..	393,320	44.1	3.5	.....	....	....	363,851	84.5	142,538	8.5
B. & O.	12	33.3	..	..	187,000	36.5	1.7	.....	....	....	281,413	111.0	236,664	5.7
B. & O. C. T.	..	....	8	42.8*	.....	....	...	252,500	64.3*	.6	141,136	162.0	17,621	39.8
C. & O. of Ind.	6	50.0[4]	..	..	58,520	650.0[4]	.5	5,795	61.0[5]	.01	58,383	145.0[6]	59,853	81.6[6]
C. & A.	15	7.1	3	50.0*	491,535	38.5	4.4	154,054	17.5	.3	.....	....	.....	....
C. & E. I.	22	46.6	3	85.0*	354,540	93.2	3.2	472,777	60.7*	1.1	265,495	54.8	409,517	29.5
C. & Erie	11	10.0	..	..	198,400	6.6	1.8	.....	....	....	.....	....	.....	....
C. & N. W.	141	33.0	204	20.7	2,330,155	32.7	21.1	12,252,160	23.2	29.1	1,212,864	51.6	3,899,600	48.3
C. & W. I.	..	....	36	260.0[1]	.....	....	...	1,472,345	10.9[2]	3.5	.....	....	.....	....
C., B. & Q.	31	34.7	64	4.5*	775,366	89.1	7.	4,104,556	60.9	9.7	771,063	40.7	1,031,326	7.5
C. G. W.	8	33.3*	..	..	126,214	36.0	1.1	5,430	60.3	.01	183,695	27.1	247,804	18.3
C., I. & S.	6	50.0[3]	..	..	37,770	266.0*	.34	53,563	239.0[3]	.1	.....	....	.....	....
C., I. & L.	14	40.0	..	..	295,988	40.8	2.7	.....	....	....	128,048	27.6	150,818	45.7
C., M. & St. P.	55	19.5	31	29.5*	1,072,474	92.8	9.7	448,750	23.5*	1.0	677,357	30.8	1,182,541	5.6*
C., R. I. & P.	40	53.8	70	18.6	554,736	182.6	5.4	4,488,971	50.4	10.6	287,659	22.7	308,640	13.5
E., J. & E.	..	....	..	..	.....	....	...	.....	....	....	518,977	14.6	2,385,161	856.0
G. T. Western	14	40.0	8	.0	331,200	149.1	3.	765,000	8.5	1.8	.....	....	.....	....
I. C.	44	29.4	289	14.7	769,694	28.8	6.8	13,301,819	1.3	31.6	704,792	8.4	1,097,902	4.7
I. H. B.	..	....	..	..	.....	....	...	.....	....	....	.....	...	787,219	11.1[4]
L. S. & M. S.	32	52.3	40	39.4*	806,352	92.8	7.3	3,813,591	249.0	9.0	842,000†	84.7	1,046,525†	77.7
M. C.	27	35.0	..	..	625,696	40.4	5.7	.....	....	....	627,317	7.9	333,717	19.9
M., St. P. & S. S. M.	14	40.0	..	..	190,342	51.6	1.7	8,810	76.2	.02	127,937	7.7	28,908	30.8
N. Y. C. & St. L.	6	0.0	..	..	265,500	38.9	2.4	.....	....	....	111,358	3.1	176,040	52.0
P. M.	10	42.8	..	..	312,700	374.0	2.8	.....	....	....	.....	....	.....	....
P. C. C. & St. L.	14	0.0	..	..	278,738	62.8	2.5	.....	....	....	376,207	53.0	387,207	47.3
P. F. W. & C.	26	62.5	24	33.3	383,626	54.6	3.5	181,500	53.7	.4	502,992	78.4	598,385	37.4
Wabash	15	16.6*	13	8.3	259,917	9.2	2.3	337,972	3.7	.8	367,086	43.8	298,753	53.4
Totals	579	31.6	793	7.9	11,099,783	56.4	100.	42,119,593	26.9	100.	8,549,630	41.3	14,826,739	59.2

* Decrease. [1] 1904-1912. [2] 1905-1912. [3] 1906-1912. [4] 1907-1912. [5] 1908-1912. [6] 1910-1912. † Including C. I. & S.

Passenger Traffic

There are in the city of Chicago six large passenger terminals in addition to two suburban passenger terminals. The number of passengers, through and suburban, and the average number of weekday passenger trains, through and suburban, handled at

each of these stations during the year 1912 is shown in Table II.

The individual suburban stations in Chicago which handle the largest number of passengers are the Van Buren street and the Randolph street stations of the Illinois Central. Practically all of the suburban passenger traffic of the Illinois Central, bound to or from the downtown business district, is handled by these two stations. During the year 1912 an average of 145 suburban passenger trains arrived at, and 144 departed from, the Randolph street terminal every weekday. During the same year 13,301,819 suburban passengers were handled by the Illinois Central, and most of the traffic was served by these two stations.

On October 19, 1912, there were handled in the Chicago terminals 532 through passenger trains and 872 suburban passenger trains, comprising 3,575 through passenger cars and 3,909 suburban passenger cars. There were 25 railroads operating passenger service within the area of investigation in 1912. Of these, 23 carried through passengers and 17 carried suburban passengers.

In discussing the probable development of Chicago passenger traffic the committee states that suburban passenger traffic is generally dependent on the population of the district served. In Chicago its growth is probably dependent on the increasing population of the suburban towns rather than on that of the city. Statistics show that the surface and elevated railways are absorbing the short-haul passenger traffic and are thereby forcing the steam roads to depend on the long-haul business. This tendency is manifested by the increase in the average length of haul of suburban passengers on three representative steam roads from 1903 to 1912. The increase on the Illinois Central was 12 per cent; on the Chicago, Rock Island & Pacific, 25 per cent, and on the Chicago & Western Indiana 14 per cent.

The rate of increase of suburban passenger traffic on the steam roads of Chicago has diminished in recent years, principally because of the advantages of the electric surface and elevated lines in respect of lower fares, more frequent schedules, transfer privileges and ability to deliver passengers in closer proximity to their destination. The extended use of the automobile has probably also contributed to this change. The increases in passenger traffic shown by the suburban service of the steam roads or the entire service of the elevated railways, and by the service of the surface lines in Chicago for the period from 1903 to 1912, inclusive, were as follows: Suburban traffic of steam railroads, 26.9 per cent; traffic of elevated railways, 47.2 per cent; traffic of surface lines, 111 per cent.

Following the year 1903 the number of through passengers increased approximately by increments of 444,000 per year. Considering this in connection with increases in population and other factors the committee estimated that the number of through passengers arriving at, and departing from the steam railroad terminals of Chicago in 1922 will be 15,540,000, or 40.3 per cent greater than the number in 1912; that the number of suburban passengers will increase, but that the rate of increase will continue to diminish, so that this service in 1922 will be 7.2 per cent greater than in 1912, making a total of 45,100,000 suburban passengers, and that the total number of all passengers arriving and departing will be 60,640,000, or 14 per cent greater in 1922 than in 1912.

The number of scheduled passenger trains on each road was obtained from the operating time tables. The average number of through Sunday trains increased from 337 in 1903 to 486 in 1912; of suburban Sunday trains from 244 to 344; of both through and suburban Sunday trains from 581 to 830. The ratio of the number of Sunday trains to the number of weekday trains in through service increased from 76.7 per cent in 1903 to 83.9 per cent in 1912; in suburban service from 33.2 per cent in 1903 to 43.4 per cent in 1912, and in both through and suburban service from 49.4 per cent to 60.5 per cent. The rate of increase in the number of Sunday trains therefore is greater than that of the weekday trains. During the period from 1903 to 1912 the average number of weekday through passenger trains increased 31.6 per cent, and the average number of Sunday through passenger trains increased 44.1 per cent. The increase in the total number of through trains arriving and departing was 33.5 per cent, and the increase in the number of through passengers was 56.4 per cent. The average number of through passengers carried per train increased from 44.6 per cent in 1903 to 52.4 per cent in 1912, a gain of 17.5 per cent.

The number of weekday suburban passenger trains increased 7.9 per cent from 1903 to 1912; that of Sunday suburban trains increased 41.2 per cent, and the total number of suburban trains increased 10 per cent. The average number of suburban passengers per train increased from 140 in 1903 to 157.5 in 1912, a gain of 12.5 per cent.

The number of through and suburban weekday trains increased 16.8 per cent during the 10-year period, while the number of Sunday through and suburban trains increased 42.8 per cent. The total number of passenger trains per year increased 19 per cent from 1903 to 1912. The average number of passengers per train arriving and departing was 102 in 1903 and 111 in 1912, the increase being 8.8 per cent. It may be noted in this connection that the average number of passengers per train for the whole United States was 46 in 1903, and 56 in 1912. This represents an increase of 21.7 per cent. Taking these facts into consideration with the increase in population, the committee estimated that for the year 1922 the average number of weekday through trains will have increased 12.3 per cent over the number of such trains in 1912, or from 579 to 650; that the number of suburban trains will have increased 2.4 per cent, or from 793 to 812; and that the number of through and suburban trains will have increased 6.7 per cent, or from 1,372 to 1,462; but that the number of passengers per train will have increased only from 52.4 in 1912 to 58 in 1922, an increase of but 10.5 per cent. In other words, the increase of 2.4 per cent in the number of suburban passenger trains will accommodate the 7.2 per cent increase in the number of suburban passengers with an increase of 3.5 per cent in the average number of passengers per train.

The Chicago, Indiana & Southern does not operate suburban trains, but reported passengers for Lake Shore & Michigan Southern suburban trains which operate over its tracks. The through passengers of the Cleveland, Cincinnati, Chicago & St. Louis are included in the reports of through passengers for the Illinois Central, over whose tracks the Big Four enters the city.

TABLE II—PASSENGER TRAFFIC HANDLED IN CHICAGO STATIONS

Station	Suburban Passengers	Per Cent of Total	Through Passengers	Per Cent of Total	Total Passengers	Per Cent of Total	Avg. No. Suburban Trains Week Day	Avg. No. Through Trains Week Day
Northwestern (C. & N. W.)	12,252,160	29.09	2,330,155	20.	14,582,315	27.4	204	141
Central (I. C., M., St. P. & S. S. M., C. C. C. & St. L.)	13,310,629	31.60	1,596,722	14.3	14,696,361	27.6	...	85
Dearborn (A. T. & S. F., C. & O., C. & E., C. & W. I., C. I. & L., G. T. W., Wab.)	2,581,112	6.12	1,537,345	13.8	4,064,457	7.6	57	76
Grand Central (B. & O., B. & O. C. T., C. G. W., P. M.)	257,930	.61	625,914	5.6	883,844	1.6	8	30
Union (C. & A., C., B. & Q., C., M. & St. P., P. C. C. & St. L., P., Ft. W. & C.)	4,888,860	11.61	3,001,739	27.	7,890,599	14.8	122	141
LaSalle Street (C. & E. I.,* C., I. & S., C., R. I. & P., L. S. & M. S., N. Y. C. & St. L.)	8,828,902	20.97	2,018,898	18.1	10,847,800	20.3	133	106
Total	42,119,593	100	11,099,783	100	53,219,376	100	504	579

*C. & E. I. now uses Dearborn Station.

FREIGHT TRAFFIC

There are 27 railroads that move freight cars into and out of the Chicago terminals, and of these 26 handle freight in less than carload lots. Five railroads made no report. The total tonnage presented by the table is the total for the roads reporting, and it is obviously less than the totals for Chicago. The tables presented in the committee's report give the results by years from 1903 to 1912, inclusive. Information concerning the separate accounting of loaded and empty cars and the percentage of the total represented by through cars, both loaded and empty, could not be given by most of the operating companies and so no attempt was made to formulate values for these factors. The fact should be noted that in arriving at points within the area of investigation or in leaving it, cars sometimes crossed the boundary twice, in which case they were so reported. It is possible, therefore, that with some railroads the number of cars reported may be somewhat in excess of the true number of cars received and forwarded by the roads. The tonnage figures presented, while incomplete, include over 95 per cent of the total tonnage handled through all of the terminal freight houses.

A few roads were unable to give the required information for all years. In such cases deficiencies were supplied by estimates and comparisons based on returns from other roads. The tonnage figures for the Illinois Central include the traffic of the Cleveland, Cincinnati, Chicago & St. Louis, and the Lake Shore & Michigan Southern figures include the Chicago, Indiana & Southern freight tonnage and cars which could not be segregated.

TABLE III—PERCENTAGE OF ROAD AND TRANSFER FREIGHT HANDLED BY EACH RAILROAD

(Ton-Mile Basis, Year 1912)

Railroad	Percentage of Total Freight Traffic Handled: Road Freight	Transfer Freight
Atchison, Topeka & Santa Fe Ry.	2.50	0.63
Baltimore & Ohio R. R.	5.32	2.76
Baltimore & Ohio Chicago Terminal R. R.	....	5.61
Calumet, Hammond & Southeastern R. R.	....	....
Chesapeake & Ohio Ry. of Indiana	....	0.51
Chicago & Alton R. R.	1.79	1.53
Chicago & Calumet River R. R.	....	....
Chicago & Eastern Illinois R. R.	1.09	3.26
Chicago & Erie R. R.	....	....
Chicago & Illinois Western R. R.	....	....
Chicago & North Western Ry.	14.29	12.46
Chicago & Western Indiana R. R. and the Belt Ry. of Chicago	....	25.79
Chicago, Burlington & Quincy R. R.	0.96	5.15
Chicago Great Western R. R.	0.66	0.16
Chicago, Indiana & Southern R. R.	0.81	....
Chicago, Indianapolis & Louisville Ry.	0.16	1.75
Chicago Junction Ry.	....	....
Chicago, Milwaukee & St. Paul Ry.	8.75	8.25
Chicago River & Indiana R. R.	....	....
Chicago, Rock Island & Pacific Ry.	0.62	4.63
Chicago Short Line Ry.	....	....
Chicago Union Transfer Ry.	....	....
Chicago, West Pullman & Southern R. R.	....	0.10
Elgin, Joliet & Eastern Ry.	....	1.54
Grand Trunk Western Ry.	3.39	0.46
Illinois Central R. R.	10.18	4.52
Illinois Northern Ry.	....	0.24
Indiana Harbor Belt R. R.	....	1.78
Lake Shore & Michigan Southern Ry.	14.99	2.61
Manufacturers' Junction Ry.	....	0.03
Michigan Central R. R.	1.10	3.66
Minneapolis, St. Paul & Sault Ste. Marie Ry.	....	0.81
New York, Chicago & St. Louis R. R.	3.13	1.87
Pere Marquette R. R.	0.53	1.08
Pittsburgh, Cincinnati, Chicago & St. Louis Ry.	9.97	3.63
Pittsburgh, Fort Wayne & Chicago Ry.	13.96	3.51
Pullman Railroad	....	....
Wabash Railroad	5.80	1.67
Totals	100.00	100.00

From these statistics it appears that the tonnage received through freight houses (L.C.L.) as reported for 1912, 3,207,126 tons, represented only about 37.5 per cent of that received and forwarded. The amount was 39.4 per cent greater in 1912 than in 1903. The tonnage forwarded through freight houses, as reported for 1912, 5,342,504 tons, represented 62.5 per cent of that received and forwarded. The amount showed an increase of 42.4 per cent over the similar tonnage for 1903. The total tonnage handled was 41.3 per cent greater in 1912 than in 1903. For the same period the increases in the number of cars received and the number of cars forwarded were respectively 68.9 per cent and 59.6 per cent. The number of cars received and forwarded increased 59.2 per cent during the period.

The report shows that the rate of increase in the traffic handled through freight houses is less than the rate of increase in the total number of cars handled. In 1922 it is estimated that the total tonnage of freight handled through the terminal freight houses will be 10,140,000 tons, an increase of 18.8 per cent over the tonnage for 1912. Chicago, as a railroad terminal, is the greatest point of interchange for through freight cars in the United States. The number of cars received and forwarded is dependent on the general traffic activity of the whole country. As the nation's traffic increases Chicago's interchange will increase, and as no road runs through Chicago all traffic passing through the city is interchanged. It is assumed that the growth for the period 1903 to 1912, inclusive, indicates a tendency which will obtain for the near future. The number of freight cars received and forwarded in 1922 will, on this assumption, total 20,950,000, an increase of 41.3 per cent over the number handled in 1912.

The committee also includes in this report a table showing the daily average number of trains and cars crossing the Chicago city limits, as follows:

DAILY AVERAGE NUMBER OF TRAINS AND CARS CROSSING THE CHICAGO CITY LIMITS

Direction of Movement	Av. No. of Trains: Road Freight	Freight Transfer	Average Number of Cars: Road Freight Through	Freight Local	Freight Through	Transfer Local
1	2	3	4	5	6	7
Inbound	218	163	799	5,077	338	3,522
Outbound	225	159	1,093	5,029	459	3,305
Totals	443	322	1,892	10,106	797	6,827

Table III reproduced herewith shows the percentage of the total road and transfer freight traffic handled by each railroad within the proposed limits of electric operation on a ton-mile basis for the year 1912. A road freight train was defined as one handling freight cars, loaded or empty, between points inside and points outside of the transfer and terminal limit. Freight transfer trains were defined as trains made up of freight cars loaded or empty, in transit between different railroads or between yards of the same railroads that are not contiguous.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS

The winter meeting of the Association of Transportation and Car Accounting Officers was held at St. Louis, December 14 and 15, with 164 members in attendance, and F. E. Higbie, first vice-president, in the chair. At the opening the association listened to an address by E. D. Levy, general manager of the St. Louis & San Francisco.

Mr. Levy spoke at length on the handling of freight claims, outlining a method originated by himself and utilized in its entirety on the Frisco during the past eight years, resulting in a great reduction in freight claim payments. He told of his experiences in enforcing the new regulations, particularly his methods for detecting thievery, and paid a high tribute to his employees. He finds that the majority desire to perform their duty as required by the rules. These duties can be made clear by a thorough campaign of education and by plain personal talks with the men. He explains to the men their duties and the results in a graphic manner, not by merely stating figures, but by stating figures in such a manner as to make a picture of cause and effect. If you would know something well, teach it.

The report of the executive committee showed a membership operating 254,148 miles and having in service 2,551,365 cars; and 25 new members have been admitted since June, 1915. The recommendation of the committee with regard to the appointment by the president of auxiliary committees to act as subcommittees to the various standing committees was approved by the association.

The association concurred in a recommendation of the com-

mittee on car service that it be authorized to confer with the Freight Claim Association to the end that freight claim Rule 219 be revised to harmonize with the following principle, viz:

When demurrage or storage has lawfully accrued (and the legal resources for collection thereof have been exhausted) on freight which is disposed of for charges, the amount realized being insufficient to cover accrued charges, the demurrage or storage charges should be included in prorating the deficit between the interested carriers.

A recommendation of the committee on car service with regard to per diem rule 8, covering the waivure of per diem from the date authority is given to repair the car plus the number of days intervening between the date the necessary material is ordered and the date on which material was shipped, in the manner provided by Master Car Builders' rules, as evidences by carrier's shipping receipt, was adopted by the association for submission to the American Railway Association.

The committee was sustained in its recommendation that no reclaims should be presented or allowed under car service rule 15, in the absence of local agreement to the contrary.

The committee, at the request of the American Railway Association, has drafted a map showing the territorial grouping of the railroads of North America. This, with an accompanying diagram indicating the "direction of the home road," is to be used in conjunction with an alphabetical list of railroads (car owners, members of the per diem rules agreement), which list shows the location, as to group, of each of the member roads.

The recommendation of the committee on car service that car owners show in the Official Railway Equipment Register the extreme clearance width of enclosed cars, where such width exceeds the clearance at eaves, was adopted by the association.

The list of accepted reporting marks for cars of railroad ownership was adopted for submission to the American Railway Association. Approximately 430 railroads have accepted assignments of reporting marks for cars of private ownership was also adopted for submission to the American Railway Association. Approximately 460 owners of private cars have accepted assignments. The committee has been hampered by the fact that the Master Car Builders' Association has taken no action concerning reporting marks. It was resolved to request the M. C. B. association to provide definite standards for the application of reporting marks, viz: between two horizontal bars, not to exceed eight feet from top of rail, in location now specified for either name or initial. On recommendation of the committee on office methods and accounting the action at Galveston in 1913 as to the best method for protecting the interests of railroads concerned in the case of cars placed on industry tracks, which are accessible to two or more railroads and which are not protected by interchange report, was reaffirmed. The substance of this vote is that empty cars diverted to or confiscated by another road, either loaded or empty, should be reported as interchanged as of the date and time originally placed by the delivering line; loaded cars after being unloaded, diverted to or confiscated by another road, either loaded or empty, should be reported as interchanged as of the date and time released from inbound load; and loaded cars reconsigned with the original load should be reported as interchanged as of the date and time reconsigning orders are delivered to the receiving line.

The American Railway Association was asked to change Rule 1, code of per diem rules, so as to provide that the rate shall be increased 5 cents per car per day for each six months or fraction thereof that report of such per diem is withheld; provided that the increase in the rate shall not exceed 25 cents per car per day.

The American Railway Association was asked to change Rule 11, code of per diem rules, so as to require claims covering corrections or omissions in per diem reports to be presented on the prescribed form (N), after four months and within nine months from the last day of the month in which the per diem was earned. Under the present rule it is possible for a claim to be a year old before becoming invalidated. It is also proposed that in the case of claims erroneously made, the privilege of continuance shall cease when claimant fails to return claim or present it to another road within three months as compared with a continuance period of six months under the present rule.

A recommendation of the committee outlining rules for the handling of reclaims under per diem Rule 5 was adopted as recommended practice. It provides that per diem reclaim statements shall not be returned to the claimant road on account of errors except where the net amount involved in such errors exceeds 10 per cent of the total per diem reclaim statement. Any exceptions to the per diem reclaim statement are to be reported to the billing line within 30 days from receipt of statement. In such case the billing line should within 30 days either prove its right to reclaim or adjust in the current month's account.

The committee's recommendation against the showing of switching order numbers on interchange reports was concurred in by the association.

The association adopted changes, recommended by the committee, under subject No. O. M. 30, respecting the method of handling per diem reclaims. These include the showing of interchange, sheet and line number on per diem claims when such claims are made against direct connections, and also include the utilization of the A. R. A. standard form "N" and form O. M. 24-L.

The recommendation of the committee on continuous home route cards calling for the insertion of names of subsidiary lines on owners' continuous home route cards was adopted for submission to the American Railway Association. During the discussion of the report of this committee various representatives spoke at length on the advantages accruing even under the present restricted use of the continuous home route card, giving specific cases of large amounts of empty mileage saved by the use of the card. The prevailing opinion seemed to indicate that much larger results might be expected when the use of the card was universal.

The recommendation of the committee on conducting transportation providing for a flat rate of not less than $2 per car for reweighing and restenciling foreign cars was adopted by the association for submission to the American Railway Association. The committee held it desirable to charge a flat rate for reweighing and restenciling foreign cars, considering in this flat rate the amount of per diem involved, instead of charging a lesser rate and allowing reclaim. This recommendation is predicated on the principle that the possibilities for making per diem reclaims should be reduced to a minimum.

A large amount of new business was presented from the floor, which was duly referred to the proper committees for consideration and report.

It was decided to hold the next meeting of the association at Boston, June 20 and 21, 1916.

RUSSIAN RAILWAY ESTIMATES FOR 1916.—The Ministry of Ways of Communication has submitted its 1916 estimate for the railways. The receipts, according to this estimate, amount to $365,285,000, or less by $89,765,000 than those of 1915. The outlay, according to the estimate of the Railway Department, is estimated at $342,490,000, or $10,300,000 less than in the preceding year. In the explanatory statement, it is shown that in consequence of the increased cost of labor on the Treasury railways, the higher prices for Donetz coal, the increased expenditure in maintenance of staff, the heavier repairs of locomotives and cars, the increased expenses in improving the roads, in compensating for personal damage, loss, etc., the increased expenditure allocated for working the Treasury railways should amount to about $21,675,000.

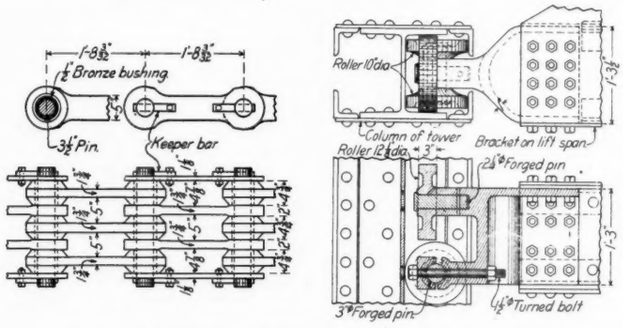
THE VOLOGDA-ARCHANGEL RAILWAY.—Passenger and freight traffic was opened on October 23-November 5, on the Vologda-Niandomo section (about 184 miles) of the Vologda-Archangel Railway, that part of the line having now been converted to broad gage. This section covers nearly one-half of the entire distance from Vologda to Archangle, namely 396 miles.

A Bridge Over the Arkansas River Near Pine Bluff

This Combination Railroad and Highway Structure Contains a Lift Span Embodying Several New Features

The design of the recently completed bridge over the Arkansas river near Pine Bluff, Ark., embraces a number of novel and interesting features, especially in respect to the design of the movable span. The bridge was built by Jefferson county, Ark., as a combined railway and highway bridge, designed to give access to Pine Bluff from north of the river, and to provide a crossing for certain proposed railways. This railway includes a line to connect with the Memphis-Little Rock branch of the Rock Island, a cut-off for the Little Rock-Pine Bluff branch of the St. Louis Southwestern, and an interurban road from Little Rock to Pine Bluff. So far none of these lines has been built.

The bridge is approximately 3,010 ft. long and consists of 1,610 ft. of steel structure and 1,400 ft. of timber trestle. The steel portion consists of 7 riveted spans, 6 of which are 239 ft.

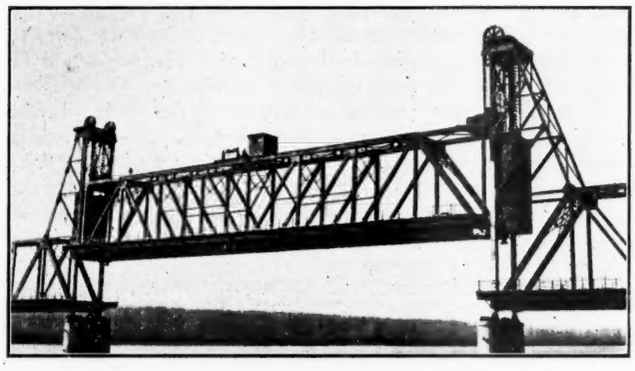


Details of Counterweight Chains and Guide Rollers

4 in. center to center of end pins, while the span at the north end is 149 ft. 7 in. center to center of end pins.

The substructure consists of the north abutment founded on 106 40-ft. timber piles, and 7 piers sunk by the pneumatic process to a depth of approximately 70 ft. below extreme low water. No bed rock was found, the material at the bottom of the piers being a mixture of sand and coarse gravel. It is thought that this depth is sufficient to insure safety from undermining by scour. The base of the abutment is at low water level.

The bridge carries a single railway track on open floor be-

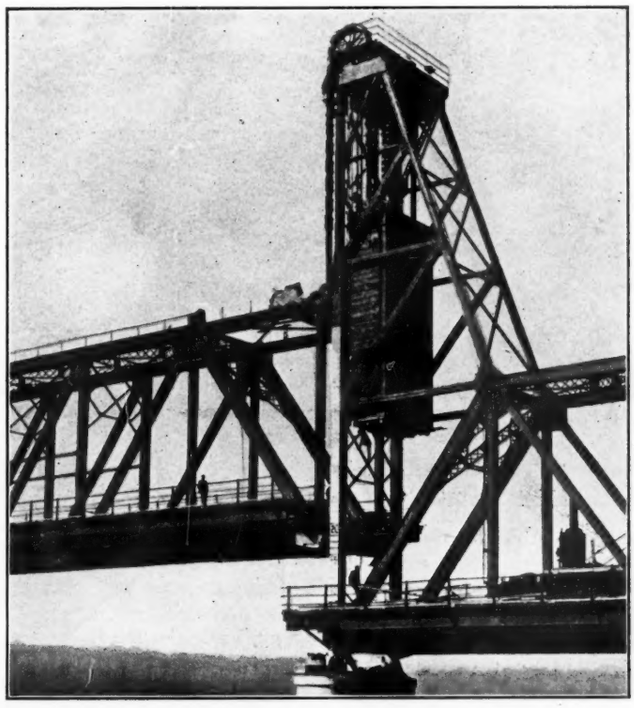


The Lift Span Partly Raised

tween the trusses, with two 11-ft. roadways carried by cantilever brackets on the outside.

As the channel of the Arkansas river is liable to shift at any time, it was considered desirable to use a type of construction that would permit the shifting of the movable span to any part of the bridge in case of a change in the location of the channel. This requirement is best met by the use of the vertical lift type of movable span. The trusses of all six equal spans were made alike to provide for the extra loading in case some other span should be converted into a lift span.

The weight of the lift span is counterbalanced by concrete counterweights attached to the span by means of steel chains passing over cast steel sheaves or drums at the tops of the towers. Since one of the counterweights weighs the same as half the span, the total dead load at the top of the tower is equal approximately to the weight of the span, which is 610 tons. Consequently the shoes of the towers carry a much heavier load than the other shoes. These tower shoes must be fixed, so in case of the conversion of another span into a lift span, the shoes at the movable end are so designed that the rollers may be removed and a steel casting of the same depth inserted. Each roller nest consists of seven 8-in. rollers. Both the fixed and expansion shoes of the lift span are carried up with the span. The rollers are left on the base or pedestal,

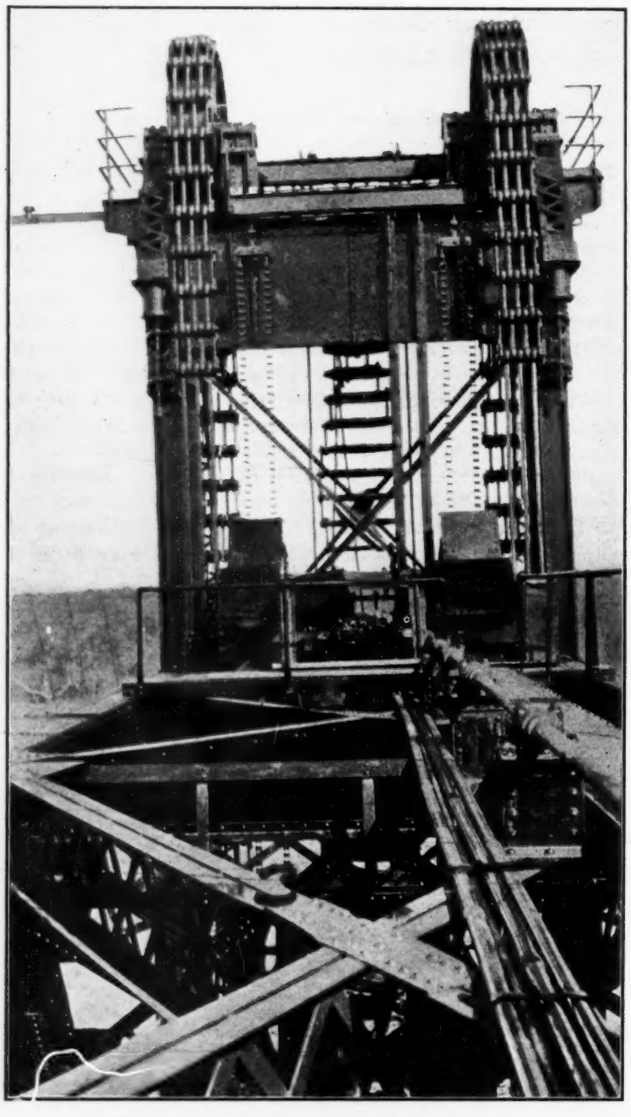


The Tower with Lift Span Partly Raised

and are kept approximately vertical by means of two coil springs attached to the top of the middle roller at one end. These springs are attached to the pedestal or base in such a manner that they pull in opposite directions, thus keeping the rollers upright. The drums or sheaves are set 6 in. back of the center line of the top beams between the tower columns, and practically all of the load of the span and counterweights carried to the towers is transmitted directly through the tower columns and shoes to the pier.

At each corner of the lift span there is a vertical hanger consisting of four angles and a web plate, extending to the elevation of the top of the top chord. Between the end of each hanger and the hip of the top chord there is a double web girder of the same depth as the top chord, which serves to

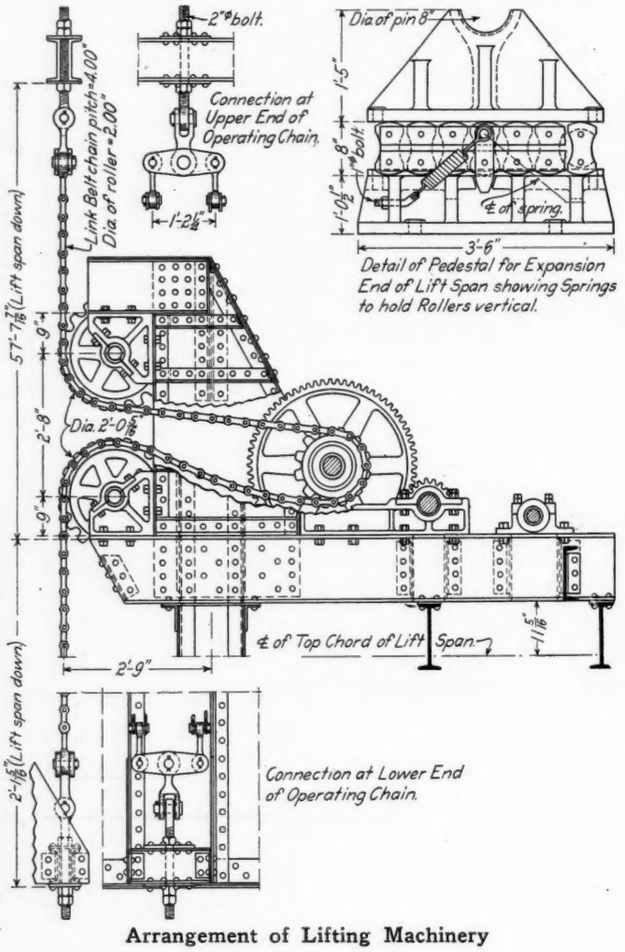
tie the hanger to the top chord and also to support the machinery at the end of the span. Since the center line of the main chains carrying the lift span is 1 ft. 9½ in. inside of the center line



View of Tower from Top of Lift Span

of the towers, the counterweight chains are attached to transverse girders between the hangers.

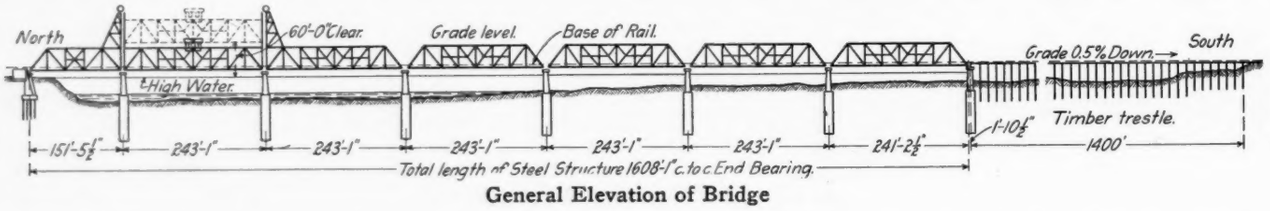
The lift span is provided with guides to insure its proper position while ascending and descending as shown in one of the drawings. At each corner of the lift span about 6 ft. above the center line of the bottom chord, there is attached a steel casting projecting into the rectangular space formed by the web and flanges of the 14-in. Bethlehem section of the tower posts and the flange angles riveted to the inside of the 22 in. side plates. At the fixed end of the span each of these steel castings has two longitudinal rollers 10 in. in diameter and one transverse roller 12⅛ in. in diameter on its center line and beveled to suit the inclination of the underside of the flange on the H-section. Thus the span is effectually guided both longitudinally and transversely. At the expansion end of the span the two longitudinal rollers are omitted to provide for the expansion and contraction of the lift span, but the transverse roller is used to keep the span in its position laterally. The rollers are designed to be easily removable.



Arrangement of Lifting Machinery

In order to center the span transversely there is attached to the middle of each end floor beam of the lift span, a casting with a tongue which engages a recess in another casting carried on a steel frame attached to the pier. This device also serves to carry the transverse wind load to the pier, since it would be difficult to carry this load through the shoes.

Perhaps the most interesting feature of the design is the counterweight chain used to support the span. As shown in a photograph and a drawing the chain is built up of short links or bars connected by means of 3½-in. diameter pins. The links



General Elevation of Bridge

are 1 ft. 8-3/32 in. long, center to center of pin holes and the sets of links between pins are made alternately rotatable and non-rotatable. Each rotatable set contains three links 5 in. by 1¼ in. in cross section. The heads are forged to a thickness

of 4¾ in. to reduce the bearing on the pins to 6,000 lb. per sq. in. These rotatable links are provided with phosphor bronze bushings ¼ in. thick. In each set of non-rotatable links there are two inside links 5 in. by 1¾ in. in cross section with heads 2 in. in thickness, and two outside links 5 in. by 1⅛ in. in section with heads of the same thickness. The pins project somewhat beyond the outside links and are provided in each end with a diametrical hole in which is inserted a 1¼-in. pin or keeper bar, which is bolted to the center of the outside non-rotatable link. The purpose of the keeper bar is to prevent the rotation of the pins with respect to the non-rotatable links and to compel the rotation to take place in the enlarged heads of the rotatable links.

The keeper bars were designed to overcome a difference of about 2 per cent. in frictional resistance. It was thought that the resistance to rotation of the bronze bushed links would be less than that of the thin unbushed links. In some instances this proved not to be the case. When the span was put in operation rotation took place in some instances in the heads of the thin links, which caused the keeper bars to bend and in come cases to break. This did not interfere with the operation of the span, it being necessary merely to insert bolts instead of the keeper bars, in the ends of the pins to prevent the possibility of the links working off the pins.

Another interesting feature is the cast iron supplementary or folding counterweights designed to overcome the unbalancing effect resulting from the fact that the weight of the chain is on the counterweight side when the span is raised and on the span side when the span is lowered. It consists of cast iron disks 3 ft. 5 in. in diameter and 2¼ in. in thickness, with projecting lugs diametrically opposite having two holes in each lug for 1¾ in. diameter bolts. Each disk is suspended from the one above by means of two diametrically opposite bolts. Each disk is rotated slightly with respect to the one above in order to permit the bolts to clear the lugs when the disks are brought together. When the main counterweight is in its lowest position the folding counterweight is extended so that all disks are one foot apart in the clear, the connecting bolts being made of the proper length to permit this. As the main counterweight rises when the lift span descends it picks up these disks one at a time until it reaches its highest position, when the folding disks are superimposed upon one another and the entire weight rests upon the main counterweight. The weight of the disks is such as to compensate in all positions for the lack of balance of the main chains.

The operating machinery is quite simple. At each corner of the span there are two heavy sprocket chains attached at one end to the top of the tower and at the other end to a cross girder between the tower posts a short distance below the top of the top chords. At a point a little above the top chord each pair of sprocket chains is looped back towards the center of the lift span in a horizontal direction between two pairs of idler sprockets and then passes over drive sprockets. These sprockets are operated by a train of gears connected to a motor. Two motors, one at each end of the span, operate the two pairs of driving sprockets at that end of the span. To insure that both ends of the span move together, the mechanism at the two ends is connected by a line shaft. In case a motor at one end should get out of order the motor at the other end will operate the span.

The plans for this bridge were prepared by Hedrick & Cochrane, consulting engineers, Kansas City, Mo., and the field work was supervised under their direction, C. S. Reagan being resident engineer. The bridge was built by the Missouri Valley Bridge and Iron Co., of Leavenworth, Kan., and the steel was furnished by the American Bridge Company, New York.

PRODUCTION OF PETROLEUM IN THE UNITED STATES IN 1915.—The marketed production of petroleum in 1915, according to the preliminary estimates of the Geological Survey, was 267,400,000 barrels or slightly more than the record production of 1914.

OUR RAILROADS AND NATIONAL DEFENSE*

By Charles O. Haines

All plans for national defense which do not include the most far-reaching use and co-operation of our railroads must, of necessity, prove both superficial and futile. For a preparedness which omits from its calculations the greatest economic agency of our country will limp haltingly enough in the event of war.

Our railroads today are admirably organized and highly efficient. But they are efficient as agents of commerce. They are organized for times of peace. Judging from the lessons of the war of 1898, this wonderful organization, specialized for peaceful commerce only, would again break down into chaos under the stress of a great war. Out of that chaos sooner or later, would come a capable military organization, but, in the meantime, the nation would have suffered irreparable loss. Yet the time to perfect plans for military and railroad co-operation is while we are at peace with all the world. Our railroad organizations should now be developed and strengthened, so that we may rely with confidence upon their subserving the purposes of the nation at war, and, at the same time, maintain the uninterrupted flow of commercial traffic.

In order to facilitate our present brief survey of this subject, and for the sake of greater clarity, we may consider the national uses of our railroads in time of war under three headings: (1) Utilization of permanent way and structures; (2) Utilization of rolling stock and equipment; (3) Utilization of personnel.

But in any attempt, however tentative, to mould the relationship of the railroads to our military policy, it immediately becomes evident that we must cease to consider our roads as separate systems, and regard them as a whole.

The selection of the military trunk lines would depend first upon regional or geographical considerations, and, secondly, upon questions of direction, grades, solidity of construction, and security from enemy attack under given conditions. Certain roads would be chosen as feeders or auxiliary lines to the military trunk lines, and certain other roads would be designated chiefly for commercial usage. The interdependence of rail, water, and trolley lines, for strategic purposes, must necessarily be considered, and their physical connections with one another perfected.

Now, although problems of military transportation should be stated by the military strategist, it may be permissible to suggest one, in order to show the complexity and importance of their elements. Let us suppose that an enemy invaded New England. Let us imagine an army being rushed forward from the Great Lakes to the aid of the defense. The approved plan for military purposes might select the New York Central lines with all of their tracks for the forward movement of troops, while the returning empty equipment might be routed over the Erie. Ammunition and war supplies would possibly be forwarded over the Pennsylvania, the West Shore and the Delaware & Hudson. In the meantime, however, the great cities in New York and New Jersey would have to be fed, and the Lackawanna and Lehigh Valley would be designated to transport such supplies. But if the expeditious movement of empty equipment necessitated the use of part of the Lackawanna trackage, thus breaking up the continuous operation of that system, this would have to be arranged for by utilizing part of some connecting lines, so that the inflow of supplies for the civil population would be ensured. One such example serves to show the need for an unhurried study of these problems, by both transportation expert and military strategist.

To facilitate such study a first requisite would be the preparation of a railroad map of the United States drawn by competent cartographers, but *from the military standpoint.* On this should be designated the military trunk roads, their feeders or auxiliaries, and also those lines to be set apart for commercial purposes and for civilian benefit. We have already seen that, in the selection of such lines, little or no consideration should be paid to actual ownership, since parts of different rail-

* From an article in the September North American Review.

ways may be advantageously combined to form one strategic road. Besides showing telegraph and telephone lines and wireless stations—even though the same lines are mapped separately—these maps must show the physical character of the railroads, their grades, number of tracks, character of construction, character of bridges and their location; the kind and character of all connecting tracks, or tracks to landing places on water lines. They must also give the location of regimental depots, army posts, instruction camps and military headquarters; tracks into such military establishments, as well as tracks for entraining or detraining troops, supply depots, etc., would all be shown. These maps should indicate where additional tracks, bridges, stations, sidings, wharves, or docks would be needed in time of war and the property which would have to be acquired.

The preparation of equipment data for military purposes would be another work of prime importance. All railroads keep records of their rolling stock, motive power, and other equipment. These are complete as to all necessary details, corrected and revised frequently and regularly. There exists also a list of all rolling stock, which is up to date and accurate. And while this information is only for railroad purposes, it is of the highest military importance, though not, from the military standpoint, sufficiently complete. For such purposes, the capacity of every passenger and freight train car should be stated in terms of men and horses. And it should also be known what classes of equipment, by reason of their size or weight, are limited to use on certain lines; as well as what equipment is capable of speedy conversion into armored trains, siege gun carriages, and the like, and where it is located.

In the personnel of our railroads will be found the third great asset for military purposes. The assignment of railway officials peculiarly fitted for the work of the military trunk lines might be readily accomplished without severing their connection with their own companies. This might be done in much the same way that our army and navy officers are detached from customary duties, and detailed to others, as the Government needs require. Our railroads employ a million and a half of men—and many women—with an average grade of intelligence higher than any other class in the country, professional or artisan. Their training is of the best, their discipline of the highest, their sense of responsibility the most completely developed. In this great body are men of all trades and most professions. To draft men haphazard from it for our armed forces would be folly. Even to permit every individual member of it the choice of enlistment, as the more patriotic duty, would be wrong. Many railroad employees would be of far greater service to the nation on the tracks than in the trenches.

Those men who were assigned to, or volunteered for, special duty in time of war, should be instructed now. In the case of many of the managers or superintendents, this would not be of a formal character, for their experience will qualify them for such duties, and their attention once directed to the subject, they will perfect their capabilities by reading and by discussion in their various associations. For others, the additional study needed would be confined to one or two special instruction pamphlets. Railroad surgeons could become military surgeons merely by a change of title. But the telegraph operator would require considerable technical information before he could be transferred to the signal corps. Quartermasters and their assistants should be selected from the railroad purchasing and supply departments, for these men would need but a knowledge of laws regulating their duties, and the special forms and reports required.

Another important, though subsidiary, element in the relationship between the Government and the railroads in time of war is the question of remuneration.

If we concede that in a plan for national defense the railroads of the United States must be treated as a whole, it is manifest they they must be represented as a whole in the preparation of the federal agencies to secure reliable data for the United States, as a whole, on this whole problem. I would even go this plan. For this purpose there should be organized a Railroad Bureau of National Defense. The main function of this organization would be to effect the co-operation of the railroads and the military departments of the Government. But it should do much more. This bureau should be charged with the collection of data, and the preparation of preliminary plans. Through its agency, the aid and advice of the various railroad technical associations should be obtained and utilized. It should establish the closest and most harmonious relations with the great railroad brotherhoods, and count upon their effective and patriotic co-operation. It should inaugurate and develop a system of instruction in military transportation, and prepare and keep up the roster of railroad men for military purposes.

The establishment of a Railroad Bureau of National Defense, as described, might well be left to the American Railway Association—the leading railway society of the United States, of which the railroad organizations themselves are the members, and wherein they are represented by their highest officials. If this great work should be undertaken by the American Railway Association, success would be assured—for it can point to a wonderful record of achievement. To it we owe standard time, and the standardization of railway practice throughout the United States. Its recommendations are everywhere received with respect, and many of them have been incorporated in the laws of the land. Following the usual procedure of the association, a committee on national defense might be added to its list of standing committees. Members of this committee could, and should, be the directors of the Railroad Bureau of National Defense. The American Railway Association could easily arrange for the support of this bureau.

In suggesting the American Railway Association as the proper body to inaugurate a Bureau of National Defense, the writer has not overlooked the fact that Mexican and Canadian roads are eligible to membership therein. It is felt, however, that this fact may be disregarded, because of the possibility of eliminating all alien representatives from any consideration of the subject of national defense.

WHAT CAUSES LACK OF CONFIDENCE IN RAILROADS?

This is the title of a bulletin which has been issued by the Pennsylvania Railroad and which is posted prominently in waiting rooms, freight offices and other public places on the line of the road. The poster says, in part:

"The management of this railroad wants to get at the causes, wherever they exist, and remove them. . . . The starting point is to get the people who do lack confidence in this railroad to say so and tell why." Every reader is told that his candid and thoughtful views upon this subject are sought by the railroad company because, as the poster says, "It needs your confidence. It wants your co-operation. It asks for your friendship."

Railway Progress in Paraguay.—The Senate of Paraguay has approved, with some slight modifications, the concession granted to the firm of Guggiari, Gaona & Co. for the construction and operation of a railway in the northern part of the republic. It is proposed to run the line from Horquetá, a point already in railway communication with Concepcion, to Pedro Juan Caballero, on the frontier of Brazil.

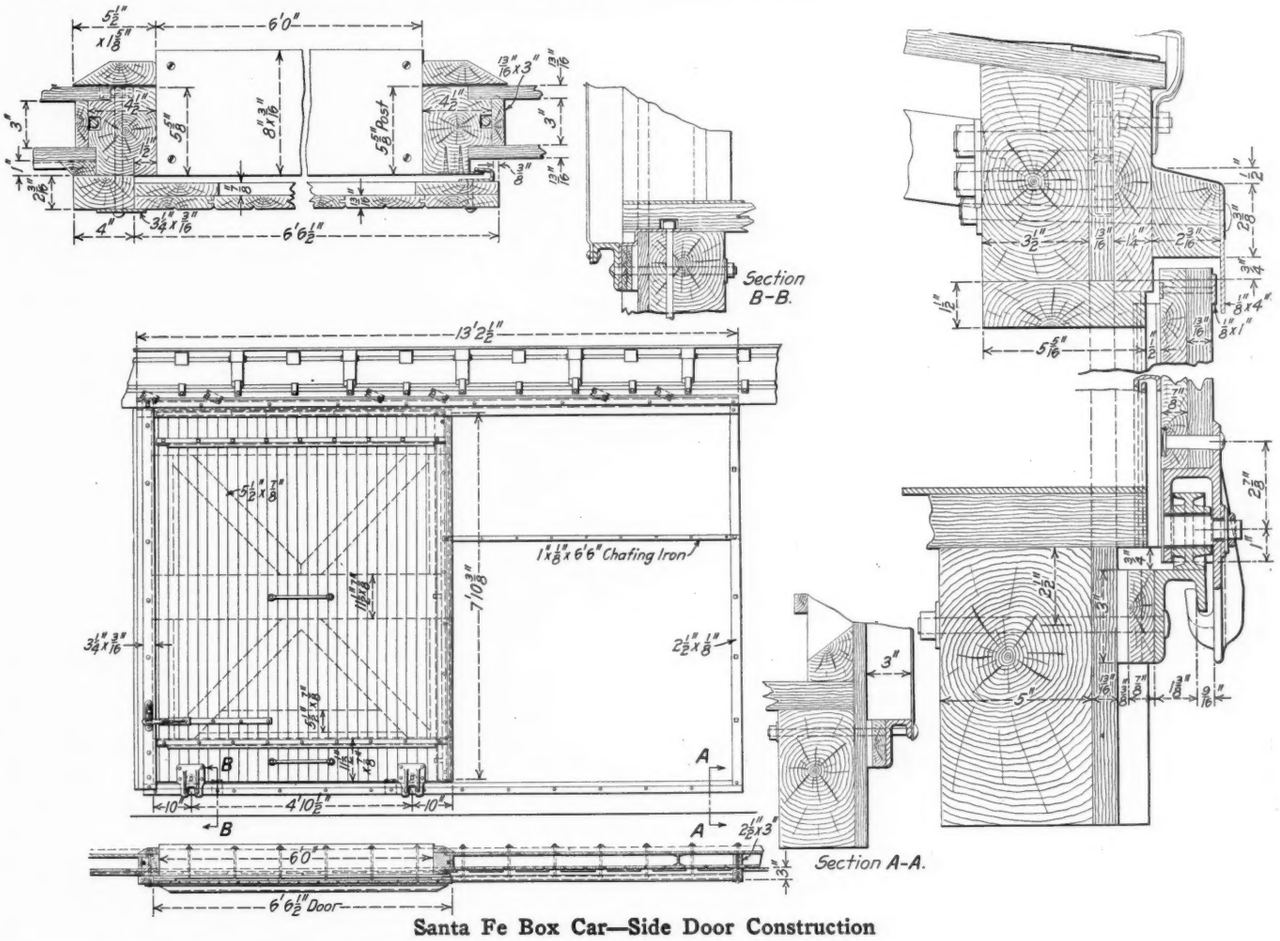
Electrification in Australia.—The annual report of the Victoria Railway Commission, recently issued, says—about the electrification of the Melbourne suburban railways—that progress has been considerably retarded by the abnormal conditions created by the war. In some instances the workshops of contractors for the supply of machinery and equipment have been requisitioned by the Imperial Government for the production of munitions of war, and although every effort has been and will continue to be made to expedite the scheme, the vital needs of the empire are paramount, and everything must, naturally, be subordinated thereto. It is not, therefore, possible to give any indication of the probable date of the introduction of electric traction.—*The Engineer, London.*

Atchison, Topeka & Santa Fe Steel End Box Cars

Box Cars of 40 Tons Capacity with Steel Ends; Truss Rod Underframes and Steel Center Sill Construction

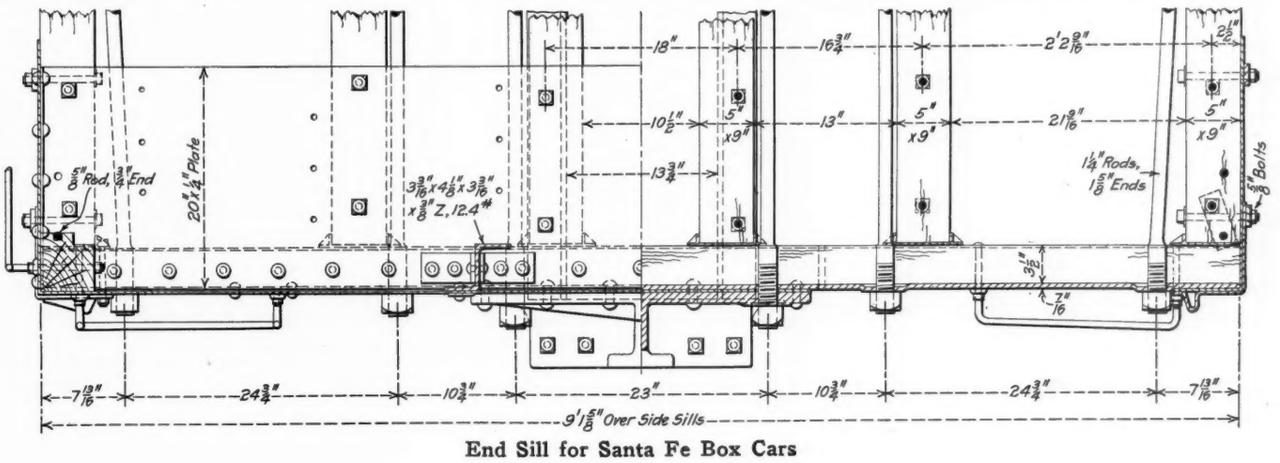
The Atchison, Topeka & Santa Fe has recently received from the Haskell & Barker Car Company 700 36-ft. box cars of 80,000 lb. capacity. These cars have steel ends and the truss rod type of underframe, and weigh 43,300 lb. The following is a list of the general dimensions:

Length over end sills	37 ft.	
Length inside	36 ft.	
Width over side sills	9 ft.	1⅝ in.
Width over siding	9 ft.	3¼ in.
Width inside	8 ft.	6 in.
Height inside, clear space	7 ft.	11 13/16 in.
Height from top of rail to top of running board	13 ft.	3 1/16 in.
Wheel base of car	32 ft.	¼ in.
Wheel base of truck	5 ft.	4 in.



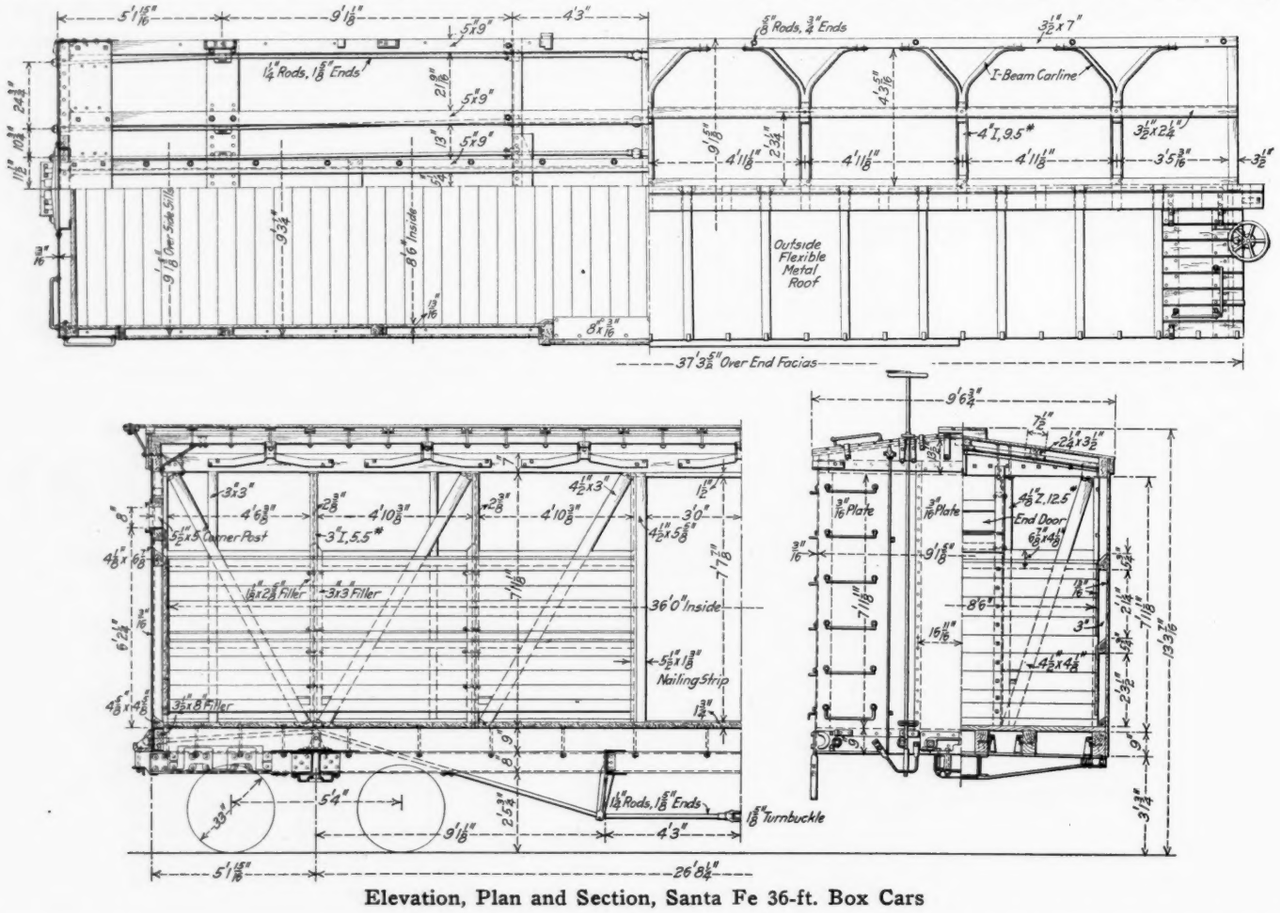
Santa Fe Box Car—Side Door Construction

These cars were built for grain and heavy merchandise service, the ends being of especially substantial construction. The underframe is made up of 5 in. by 9 in. wooden longitudinal sills located 9 in., 2 ft. 1¾ in., and 4 ft. 4 15/16 in. each side of the center line of the car. The two center sills are reinforced with 8 in. ship channels located directly underneath them, which form the draft



End Sill for Santa Fe Box Cars

members of the underframe. The bolt holes in the side sills are located to give the car body a camber of 1 in., which must be maintained with no tension on the truss rods. The truss rods over chairs on the body bolster and are anchored in the end sills. Cross beams consisting of 8-in., 18-lb. channels are located 4 ft. 3 in. each side of the transverse center line of the car. They



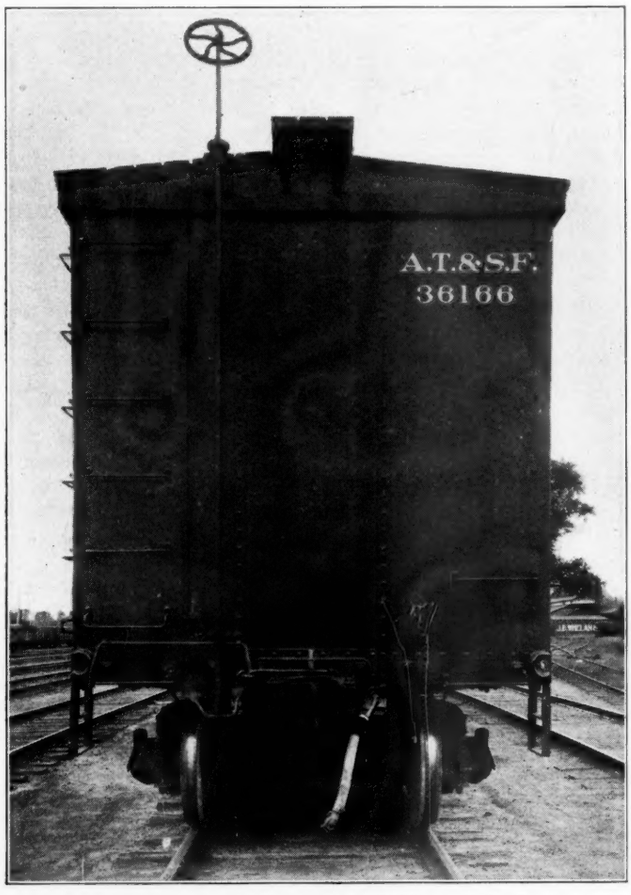
Elevation, Plan and Section, Santa Fe 36-ft. Box Cars

are 1¼ in. in diameter and are located 6 in., 2 ft. 6⅛ in., and 3 ft. 6¼ in. each side of the center line of the car. They pass are cut to fit against and between the draft sill channels and are riveted to gusset plates. They are bolted to the side and in-

Atchison, Topeka & Santa Fe 40-Ton Steel Box Car

termediate sills and support the queen posts for the truss rods.

The body bolsters are located 5 ft. 2 9/16 in. back of the end sills. They are made up of 5/8-in. by 12 in. top and bottom cover plates with two 1/2-in. pressed steel center fillers, four 5/16-in. pressed steel intermediate fillers and four 3/8-in. end fillers riveted to the cover plates and center draft sills with 3/4-in. rivets. The body center plates are drop forgings and the side bearings are located 2 ft. 6 in. each side of the center line, the Standard Car Truck Company's roller truck side bearings being used. The end sills are 9-in., 28.6-lb. ship channels with 3 1/2-in. by 8-in.



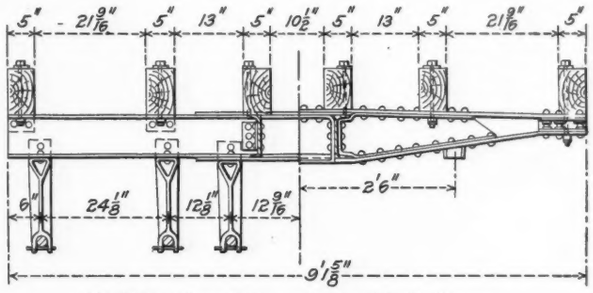
Steel End of the Santa Fe 36-ft. Box Car

oak fillers. The channels are pressed to form a bearing for the truss rod nuts.

A unique feature in the design of these cars is the substantial end construction. It consists of two 4 1/8-in., 12.5-lb. Z-bar end posts, 3/16-in. outside steel sheathing and a 1 3/4-in. wood lining inside. The outside steel sheathing is applied vertically in three sections, the two outside plates extending around on the sides of the car for a distance of 23 in. The middle sheet is 33 3/8 in. wide. It is offset at the sides to lap over the end sheets and is secured to the end posts with the end sheets by 1/2-in. rivets. The side sheets are bolted to the corner posts both at the ends and sides with 1/2-in. carriage bolts. The ladder irons are fastened to the car by these bolts at one end and are riveted directly to the steel sheets at the other end. The side sheathing is gained out to receive the end of the side sheets and they are both attached to a cripple post by 3/8-in. carriage bolts. At the bottom the steel plates are riveted to the end sill and bolted to the side sills and at the top are fastened to the end and side plates by 1/2-in. carriage bolts.

The side framing consists of eight 3-in., 5.5-lb. I-beams for side posts and twelve 4 1/2-in. by 3-in wooden diagonals. The I-beams are provided with 1 1/8-in. by 2 5/8-in. wood fillers on one side and 3-in. by 3-in. fillers on the other to which is nailed the inside sheathing. The inside sheathing extends only 5 ft. 2 in. above the floor. It is 13/16 in. thick at the sides and 1 3/4 in. thick at the ends. As will be noted in the section through the framing, an opening is provided just above the lower belt rail and at the floor. This precludes the possibility of grain lodging between the lining and the outside sheathing. There are two belt rails on the side of the car and one at the end. They are beveled on the upper face, as is the grain strip at the bottom, to prevent the grain from lodging on them. Seven 4-in., 9.5-lb. I-beams are used for the carlines. These are bent at the middle and split at the ends, the legs thus formed being spread out and bolted to the side plate as indicated in the plan view of the car. The ridge pole and purlins are bolted directly to the carlines.

The side doors are of particular interest. They operate on bottom rollers, the track being an inverted unsymmetrical U-section the long flange of which is bolted to the side sill with 1/2-in. carriage bolts. The roller housings have two legs which hook over the short flange of track, the latter serving as the door guide. The top guide is a 4-in. by 1/8-in. steel plate which with a 2 3/16-in. filler block is secured to the side plate by 1/2-in. carriage bolts. Both the front and back door stops are rein-



Half-Sections Through the Underframe

forced with steel plates, and cripple posts are placed directly behind the back stop. The door itself is reinforced with two 1 25/32-in., 2.6-lb. Z-bars, one 7 3/8 in. from the top and the other 10 1/2 from the bottom. Security weather strips are applied at the back of the doors. Nailing strips are applied to the inside of the door posts, with burlap between, to which are nailed the grain doors when the car is used in grain service.

These cars are equipped with the Class A-19-C Minor friction draft gear, Andrews cast steel truck side frame, Camel Company's side door fixtures, Standard Railway Equipment Company's outside flexible metal roofs and the Standard Car Truck Company's truck roller side bearings.

CONSIDER THE POSTAGE STAMP

By Walter S. Hiatt

Our Special European Correspondent

This is a muck-raking article on big business.

When we Americans talk foreign commerce, we too often take down a book of financial statistics and then welter in million and billion-dollar sums and in fantastic balances of trade. We often hold a few dinners; the chambers of commerce flow with oratory, reek with cigar smoke and grape juice fumes, the orators tell us of the splendid fields opening up—and then too often we go home and go to bed. We will conquer these fields "tomorrow"—as they say in Marseilles, Bombay, Rio, Paramariabo.

Our business men are now enthused about the trade we are about to take away from the Europeans in South America, about the sales we shall make in Europe after the end of the war next year, when the reconstruction period begins, and when those hectic billion-dollar war material sales have ceased. Let me make a little suggestion in line with those of many others, pointing out that we can never get foreign business permanently until we learn how to do business in the foreign way.

I rise to ask that the American business man consider the postage stamp. Mr. Business Man, how would you like to get

up in the morning to find the postman at your door with a half dozen letters which you can have only by turning your pockets inside out, and giving up all your small change. Most of them have in the upper right hand corner the red two-cent stamp of the land of the free and the home of the brave, presenting to your homesick eyes the face of the father of our country.

A welcome sight, indeed. How thoughtful of friends at home to remember you. But the postman is waiting, for slapped across the face of most of the envelopes are some confounded foreign postoffice stamps, marked "tax to be collected" thirty centimes or three or six pence, or what not, according to the country, the weight of the letter, etc.

When you have paid out your cigar money for the day, you hurry through the letters. You are glad to hear from home but you have to wonder: Why can't the dear folks at home understand that by this gentle device they can't beat the postoffice, that they are robbing me when they fill up an envelope with heavy paper and direct it to me, probably asking me a lot of favors and advice on the price of silk or how to dodge submarines or other nonsense. You sigh and pay. Poor friends, they don't know any better, having never been abroad. They are so used to home correspondence, they didn't think.

But further, Mr. Business Man, how would you like to go to your place of business and find another postman waiting there? He too has a bundle of business mail for you. You go through the same process. You give up this time, however, not your cigar money, for that is gone, but the price of your lunch and your cab-fare for the day.

No matter from what business man or business house your mail comes, if its nationality is American, you are pretty sure to have to pay the foreign postage plus the fine that the postoffice imposes for the neglect of your correspondent and the trouble of collection. If you have correspondence with United States Government officials, your tax is all the heavier, for, being government officials, they suppose the frank of Uncle Sam will carry their letters anywhere, or rather they don't suppose anything—they leave that to you to do for them.

But, says Mr. Business Man, if the nuisance becomes too great, why not notify the American correspondent? There's just the point. It is too small an item in any one case. You would be called cheap. In the total of cases, however, the amount runs into hundreds and sometimes thousands of dollars a year. Any publishing house or newspaper in the United States knows to its loss how large the total becomes. I know one American doing business in London and Paris who makes it a rule to get square by putting one cent stamps on his replies to friends; but he can't do this with a business letter.

Suppose, however, the correspondence is not between two Americans but between an American and an Englishman, a Frenchman, or a Brazilian man of business. Suppose the American is laying his plans to do a few millions worth of business abroad. The first conclusion of the foreign house taxed for postage due on the American letter is that the American is a bad man of business, neglectful, and a man with whom it therefore cannot afford to do business. I say this because I have heard their comments on this subject. A foreign business man is very careful about his own postage and would consider it not only unbusinesslike but impolite to tax a correspondent. If his American correspondent continues to send letters collect, he is put down as cheap, just as one American classes another American who sends telegrams "collect."

"There is only one good point in this use of domestic postage for foreign correspondence," a Paris business man explained to me. "You are always sure to get your American mail. The postoffice will hound you to the end of the earth to collect that excess postage."

The general moral to this tirade is evident—attention to details gets big business abroad. The immediate conclusion is that if your stenographer has not sense enough to post a letter properly, get one that has.

THE DIVINE RIGHT OF STATE COMMISSIONERS

By Foreign Bondholder

"How the States Make Interstate Rates" was the subject of a noteworthy paper by the late Robert Mather. Its companion piece, "How the States Make or Mar International Finance," is yet to be written.

The St. Louis & San Francisco is a system of some 5,155 miles, of which 1,714 miles, or one-third, are in Missouri. Of the remaining mileage, a considerable portion is owned by corporations foreign to Missouri, linked into the Frisco by stock-ownership or lease. The Frisco itself provides thousands of routes for interstate movement of freight and passengers, and by connecting lines is a participant in thousands of other routes. Millions of people and millions of tons of freight originate outside of Missouri and touch that state only as an incident of a through haul between points almost as well or equally well linked up without touching Missouri. These passengers and freight bring Missouri many million dollars, through wages and other expenditures on the Missouri segment of the haul, without deriving from Missouri any benefit or costing her any money.

The Frisco is notably international on its financial side. Its bankers have been for years, and still are, houses of European origin or with European affiliations. The refunding bonds are largely held in Holland and Germany; the general lien bonds in England, France, Holland and Germany; and Europe was well represented in the 1896 reorganization and upon the Frisco board for some years after. The pending reorganization has involved months of patient negotiation with bankers and security-holders scattered all over the globe.

The making of the reorganization plan has been, as it should be, a matter of free bargaining. The reorganizers then concluded, assuming that they would reorganize in Missouri, to submit the plan to the Public Service Commission.* And this is what happened:

David Harum agrees to sell for $175 to Deacon Abner Green one bay horse, harness and sulky, with a whip and a setter pup "to boot."† The transaction being referred to the Public Hoss-Trade Commission (composed of men versed in conchology), that body decides that, for the price, the nigh wheel must not be delivered with the sulky, nor the off front leg with the horse, while the giving of the whip and setter pup "to boot" is against public policy and illegal.

That is to say, the Missouri commission decided that certain elements of a bargain might not be included in the bargain, though the bargain itself—what was left of it—might be consummated. Thus, Missouri ordains the finances for 3,441 miles of totally non-resident railroad and Heaven knows how many non-resident stock- and bondholders concerned as much with the 3,441 foreign miles as with the 1,714 resident miles. Verily, the state *can* control interstate railroads and international investments! When one recalls the tax assessed by Missouri on securities authorized, the situation begins to look almost as if the state were imposing export duties, in violation of the federal constitution!

But we do not attempt to decide whether, in this instance, the commission's judgment of the plan is sound. From a thoughtful and conservative viewpoint, there is doubtless much to be said in favor of the commission's critique. Our real purpose is to emphasize, *first*, that the commission's activities have a vastly wider scope than is circumscribed by the mere boundaries of Missouri and the interests of its people, and, *second*, the untrammeled rights of the commission enjoys, and unduly extends, under its enabling statute.

The commission is under no substantial check. The appeal from its conclusions can result in affirmance or reversal, but not in modification of its order otherwise than through the commission, and the statute prohibits the courts from interfering

* An abstract of the opinion of the commission appears elsewhere in this issue.

† Parties searching for symbolism in this trope are politely requested to desist.

with the commission otherwise than by this limited appeal. Its power over reorganizations is thus practically plenary, supreme. Only the legislature can abate that power; but not even the legislature can undo its judgments. If a good reorganization plan should be adjudged bad, it will remain taboo and unavailable; for all practical purposes, the sole relief is to try to catch the commission's fancy with a new plan.

In New York a reorganization plan "must not be inconsistent with the laws" of New York: a rational limitation and a readily available test. But Missouri has no such touchstone; "the commission may . . . impose . . . conditions as it may deem reasonable and necessary." It is legislature and court rolled into one. It sets the standard and then finds the plan wanting. Hence, it is not surprising to find the commission, in the Frisco case, adopting the loose test of "against public policy," and outlawing the plan because it does not square with the commission's conception of "public policy." Power begets more power. When a legislature, being itself subject to veto and court review, turns its powers over a body unrestrained by veto and relatively unrestrained by court review, the temptation to stretch its authority to the uttermost is too great for human commissioners to resist.

Accordingly, we behold the commission denouncing, as against public policy, a provision for convertibility of income bonds into preferred stock. Jauntily leaving to the courts the rights of creditors ranking ahead of the stock, the commission gives ear to stockholders of the bankrupt company and condemns convertibility because of objections made by these stockholders. Remember, that a new company may be is to be formed, whose stockholders will ordain, in advance, the convertible privilege; and then explain, if you can, the commission's high-sounding pronouncement respecting convertibility "without the consent of the holders of common stock." This sort of rubbish is mere dust thrown in the eyes of the public. The Frisco is not paying interest on two huge bond issues; there is a large body of general creditors; the bondholders and creditors today virtually own the property; and the stockholders have no "rights" whatsoever, except to pay an assessment to buy new junior securities if they wish to save their bacon. As owners they are negligible; as a possible source of reorganization money they are important but not indispensable. Yet the commission treats them as if they had legal rights to protect. A mortgagor is always given a right to save his equity by buying in and redeeming; but no court will adjudge that he has any rights in the property after a lawful sale. Seemingly the Missouri commission has "heard different"!

It is on the subject of the voting trust, however, that the commission gives freest rein to its fancy. There is probably no subject about which so much nonsense has been written, but as to which there is so little real judicial condemnation. The commission, being without Missouri precedent to guide it, evolves one from its inner consciousness. The characteristic of voting trust decisions is that each turns upon the particular facts; there is substantially no denunciation of voting trusts per se. The commission picks out the Shepaug case, an illustration of immoral secret profits for which reason, and for no other, the voting trust was set aside, as a leading case "against the validity of a voting trust." Next it cites the Barrie case, in an inferior Missouri court, as the only Missouri decision. Admitting that the validity of the voting trust was not pertinent in the Barrie case, that the facts were different, that the court's remarks in that case were obiter, and that the court so stated, the Missouri commission fearlessly concludes that the Frisco voting trust "is against the public policy of the state."

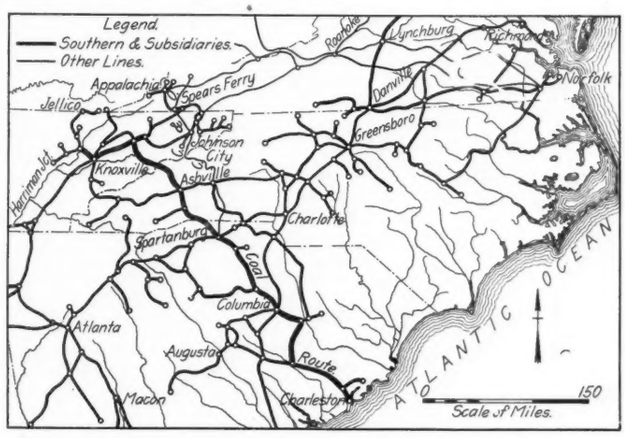
Oklahoma next arrives on the scene. The newspapers report that the Oklahoma commission calls on the Missouri commission to disallow the plan because it provides for too high a capitalization and differs with the valuation expressed by the Missouri commission to the extent of some $125,000,000. Thus the Oklahoma commission, which is similarly without standards and is guided by its own conception of public policy, entertains widely variant ideas from those of the Missouri commission and emphasizes the floating nature of the test of "public policy."

The grave danger in the commission's power over reorganizations is in its all-embracing authority. It holds up a plan alongside of a purely subjective standard situate in the minds of the commission, incapable of being expressed as a formula and devoid of objective reality, like the "head-noises" heard by a deaf person. Its "public policy" is only a philosophical concept, not a creature of legislature or court. It employs precedents as illustrations, if apposite; but not as controlling, if unwelcome. The commission's power over reorganizations, like the divine right of kings, is at once vague and violent.

Perhaps, after all, this stupendous power over corporate finance is but one of the growing pains of our republic. The Frisco case may but point the way for federal visé of interstate carriers' stocks and bonds. Let us hope so. Whatever we may think of the motives of any persons concerned, it is bad and dangerous for any constituted authority in these United States to be vested with such tremendous control over the property and rights of investors and carriers.

COAL DOCK FOR THE SOUTHERN AT CHARLESTON, S. C.

The Southern recently put in service a coal pier at Charleston, S. C., which was completed at an expenditure of $500,000. This is the first modern plant for the coaling of ships south of Norfolk on the Atlantic seaboard. It will open up a new outlet for the coal fields of southwestern Virginia and eastern Tennessee, will enable the railroad to develop considerable new business and promises the city of Charleston an increase in its shipping. A large part of the coal fields of southwestern Virginia and eastern Tennessee are directly tributary to the Southern, its own lines reaching Harriman Junction, Tenn., Jellico, Tenn., and Middlesboro, Ky., west of Knoxville, and on the Virginia &

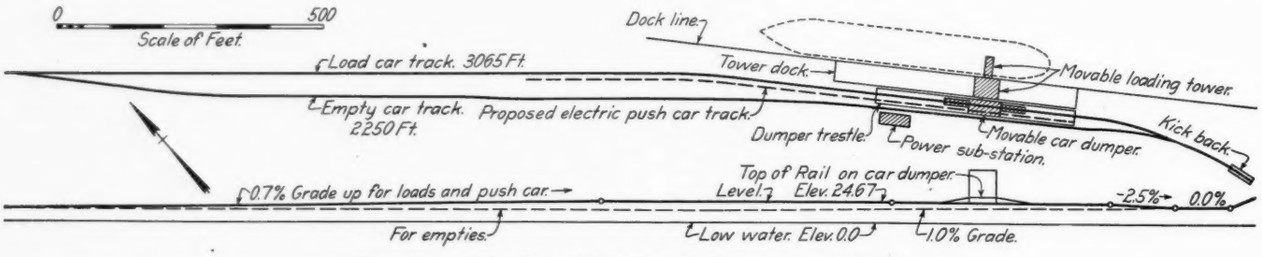


Map Showing Charleston, S. C., in Relation to the Coal Fields

Southwestern, a subsidiary of the Southern, serving the Stonega and Black Mountain mines centered around Appalachia, Va., just east of the Kentucky line. Coal is also received from the Carolina, Clinchfield & Ohio, which crosses the Virginia & Southwestern at Speers' Ferry, Va., and the Southern at Johnson City, Tenn., and connects with the latter at Spartanburg, S. C. The mines in this region are so located that they have not enjoyed the same rate to Norfolk as the mines now furnishing the large tonnage loaded on ships at that port. Because of this they have been dependent on local consumption to market the output, and the development of the properties has consequently been restricted, a condition which was of vital concern to the Southern as well as to the mine owners. This led to the plan to secure another seaboard outlet for this coal.

The selection of Charleston is based on a consideration of its excellent harbor and convenient location for ships plying be-

tween Panama and European ports, both because of the saving in mileage and the avoidance of Cape Hatteras. An additional advantage was the possession by the Southern of a direct line from the coal fields to that port, which required no improvements to provide for the anticipated increase in traffic other than to add to the yard and passing track facilities. A site for the docks was selected about three miles north of the city of Charleston on Town creek, opposite the north end of Drum island, where ships may reach the docks either by way of Town creek or the Cooper river on the far side of the island, there being sufficient water in either channel for ships of any draft.



Layout and Profile of the Tracks for the Coal Dock

As the land at the site is scarcely above high tide, it was concluded to build the dock inshore from the deep water a distance of about 200 ft., to dredge out a slip to a depth of 30 ft. and to use the spoil for filling a portion of the approach. This involved handling 170,000 cu. yd. of material.

The plan for the dock is shown on one of the drawings. It consists of a 3,065-ft. approach trestle, 375 ft. of steel dock, a 370-ft. tail track and kick back, and 2,250 ft. of trestle for the return-empty track. All of the trestles for the kick back, return and approach tracks are of creosoted timber, except 1,330 ft. at the shore end of the latter, around which the dredge spoil has been dumped, partly filling it. It is the intention to replace this entirely by embankment when the life of the untreated timber has been realized.

The present layout represents the initial construction. The plans provide for an ultimate development of four times the capacity of the present plant, which now provides for a car dumper with a rated capacity of one car every two minutes. The present plant will handle 100-ton cars, though the operating scheme proposes the dumping of regular road cars, none of which exceed 50 tons capacity at the present time. The novel feature of the plant is a coal-loading tower, containing a hopper of 200 tons capacity, into which the cars are dumped and from

General End View of the Car Dumper and Coal-Loading Tower

which the coal is transferred to the boats by a belt conveyor contained in a movable boom, affording adjustment for variation in the height of decks and the width of the boats. Both dumper and tower move longitudinally on the trestle, but the tower may be moved independently of the dumper, thus giving considerable flexibility in operation, particularly in loading bunker coal or in trimming the cargo of small boats. The cars are pushed onto the car dumper by switch engines, though it is intended eventually to use an electrically operated push car running on a track about 1,000 ft. long between the approach and the return tracks. After the cars are dumped, they pass on down a 2½ per cent grade to a kick back, which gives them the required momentum to carry them back down a 1 per cent grade on the empty return track.

The general construction of the dock is shown in the photographs. The car dumper consists of a structural steel frame extending 56 ft. 9 in. above the top of the approach trestle, with a portal large enough to take a car 11 ft. wide, 12½ ft. high and 50 ft. long. The cars are pushed up a portable incline onto the cradle operated by two 150-h.p. motors arranged in parallel, located at the top of the structure. The tracks on the cradle are arranged to give a clearance between the car and the sides of the cradle when the car enters, but as soon as tension is put in the lifting cables, a series of springs force the track laterally until the car comes in contact with the upright portion of the cradle frame. When the car has been rotated through an initial angle of about 30 deg., its top comes in contact with four heavy car clamps, also attached to cables, which remain in bearing on the top of the car during the remaining portion of the revolution and serve to support it after its center of gravity has passed the plane of the cradle pivot. The cables for the cradle and the car clamps are counterweighted, the weights being arranged in series, coming into action at different intervals, to balance as nearly as possible the moment of the car and cradle, as it varies with the distance of the center of gravity from the center line of the pivot. The car dumper is mounted on wheels to permit its movement along a track on the trestle, a 100-h.p. motor furnishing the power. An operating house is provided at an intermediate elevation to control the dumping and movement of the structure.

The Movable Coal-Loading Tower

The loading tower stands on a dock 38 ft. wide and 470 ft. long, 17 ft. 2 in. below that for the dumper. It is equipped with a hopper having fixed sides and backs, but a movable bottom or pan pivoted at the lower end. Normally this pan is on a slope of about 45 deg., giving the hopper a capacity of about one car and permitting it to empty by gravity. When it is desired to shift the tower independent of the dumper, the pan can be put in a horizontal position, giving the hopper a capacity of 200 tons. The pan must then be raised as the coal is discharged in order to empty it completely. The coal is taken from the hopper by a link belt conveyor, in a curved boom having a maximum reach of 30 ft. 11 in. beyond the dock line. This may be lowered to suit the elevation of a ship's deck, or it may be raised out of the way to clear the upper works of a ship approaching or leaving the dock. It also has an endwise sliding motion, by means of which the reach is varied eight feet.

The end of the boom is equipped with a 4-ft. chute, equipped with a telescope by means of which its length can be varied from 14 ft. 8½ in. to 25 ft. 2½ in. This may hang vertically into the hold or be swung transversely with the ship's axis. Its lower end is equipped with a trimmer cowl, which swivels on a vertical axis. All these motions give a wide flexibility to the apparatus and reduce the hand trimming to a minimum. A house supported on the water side of the tower shelters an operator who controls the pan gate, a 100-h.p. motor to raise the boom or the hopper pan, and for the bridge motion of the tower, and a 35-h.p. motor to move the boom in and out. An operator in a cab at the end of the boom controls a 100-h.p. motor to propel the conveyor, two 35-h.p. motors to telescope and swing the chute, a 3¼-h.p. motor for raising the gate in the hopper, and a 3¼-h.p. motor to swivel the trimmer cowl.

Both dumper and tower are supported on six four-wheel trucks actuated by shafting and equipped with universal joints near the connection to the trucks to allow for unevenness in the tracks. Rail clamps hold the dumper and the tower in position when in operation. The car dumper stands on a structural steel trestle consisting of three-column bents, cross-braced and spanned by six rows of 24-in. I-beams arranged in pairs. The columns are supported on pedestals with pile foundations of 5 to 12 piles each. The loading tower rests on a creosoted pile dock made up of 10-pile bents spaced 4 ft. center to center, decked with creosoted lumber. The creosoted approach, switchback and return trestle consists of 4-pile bents with 12 in. by 12 in. caps, three 7 in. by 16 in. stringers under each rail, and 8 in. by 10 in. ties. The stringers and caps are protected by sheets of No. 20 galvanized iron. Blocking is placed between the ties to permit covering with three inches of chats. The piles are driven from 50 to 60 ft. below low tide level, 3,600 piles being driven in all. All piles exposed to wear are protected by a jacket of concrete extending from the mud level to one foot above high tide.

A sub-station has been built behind the dumper trestle midway of its length. It rests on creosoted piles, has a reinforced concrete floor, brick walls and a corrugated asbestos-protected metal roof. It contains two 300-k.w., 250-volt, 1,200 r.p.m. rotary converters and two 330-kv.a. three-phase transformers to reduce high voltage alternating current supplied by the city plant to 250-volt direct current. It also contains an electrically operated firepump with a capacity of 750 gal. per minute, which serves a fire-main extending the entire length of the trestle. Hose houses placed at intervals of 200 ft., contain two 100-ft. lengths of fire hose, each connected to the fire-main by an independent valve. An engine service water tank at the end of the trestle will be connected to this pipe to permit the supplying of fresh water to ships, if desired.

The car dumper and loading tower, including all machinery and structural steel work, were furnished by the Wellman, Seaver, Morgan Company, Cleveland. All other construction work was done by railway forces. Foundation work was started on October 12, 1914, the erection of the steel was commenced on April 1, 1915, and the structure was finished ready for use on August 20, 1915. Piles were driven by a No. 3 Industrial

Works locomotive pile driver, purchased especially for this work.

The construction of the dock was carried on under the direction of W. H. Wells, chief engineer of construction of the Southern, with A. Y. Willard, assistant engineer, in direct charge.

THE ST. LOUIS & SAN FRANCISCO REORGANIZATION

The following is a very much condensed abstract of the opinion of the Public Service Commission of Missouri in the application of J. & W. Seligman & Co. and Speyer & Co., as reorganization managers for the St. Louis & San Francisco for an approval of the plan of reorganization. The language of the commission is preserved in so far as is feasible with the much condensed abstract.

The Missouri commission derives its power to pass on the reorganization of a railroad company under the laws of Missouri from section 62 of the Public Service Commission law of the state. This section concludes with the sentence, "The commission may by its order impose such condition or conditions as it may deem reasonable and necessary." The commission has the jurisdiction and authority not only to determine the amount of capitalization and fair value of the property included in the reorganization, but to determine whether the plan and agreement of such proposed reorganization is against public policy and if so the commission would be fully warranted in refusing to lend its approval to the plan.

It is alleged and sustained by substantial proof that the difficulties of the St. Louis & San Francisco were in large measure due to the failure of the Chicago & Eastern Illinois and the New Orleans, Texas & Mexico to earn the fixed charges which the railroad company had assumed in its acquisition of the interests therein and it is not intended under the plan that the lines of those systems or of the property of the New Orleans Terminal Company shall be included in the reorganization. The plan for reorganization it is expected will accomplish (1) reduction of the fixed charges to a limit believed to be safely within the net earning capacity of the reorganized property; (2) adequate capital provision for present and future requirements; (3) payment or adjustment of all debts, guarantees, etc.; (4) the preservation of the parts of the system deemed advantageous to safeguard the rights of the security holders. The plan has been approved by committees representing various classes of bondholders and also by the committee representing the stockholders. The plan includes the reorganization of the Kansas City, Fort Scott & Memphis and other companies whose property is embraced in the system, except the Chicago & Eastern Illinois, the New Orleans, Texas & Mexico and the New Orleans Terminal. The total capitalization of the old companies to be taken into the reorganization was $356,890,056 and total fixed charges were $14,886,325. Under the plan it is proposed to raise $25,000,000 cash. The capitalization of the new company, including bonds undisturbed will be $327,211,188. The fixed charges of the new company will be $9,158,190 and contingent charges of the new company will be $4,365,929, a total of $13,524,119, comparing with total fixed charges of the old company of $14,886,325. The present fixed charge obligations are at the rate of $59,536 per mile of first main track and interest charges are at the rate of $2,888 per mile. Under the reorganization the fixed charge obligations will amount to $36,472 per mile and interest charges to $1,777.

The only evidence as to the original cost is supplied by the chief accountant of the receivers. This evidence is to the effect that the original cost of the property involved in the reorganization is in round numbers $306,000,000. The commission has no appropriation to make a valuation of its own, but it estimates that it would cost $319,300,000 to reproduce the railroad property new and that there is property owned other than railroad property which would cost $2,500,000, a total of $321,800,000.

Present Condition of the Property

The commission is aware from its own inspection and reports thereon that considerable expenditures have been made to improve the conditions of the property in the last two years and that the property in Missouri generally, with some possible exceptions, is in good condition. Further, this road has considerable of its main line mileage in Missouri protected by block signals.

The normal net earnings at this time could reasonably be taken at $14,000,000 a year. There appears to be some uncertainty from the evidence as to whether net earnings should be capitalized at 4¼, 4½ or 5 per cent. After considering all the methods of arriving at value and also all the elements of value and considering the railroad in operation, the commission finds that the fair value of all the property involved, including all other property involved not useful for railroad purposes, and together with the sums to be paid in cash as provided for under the plan, having due regard for discount on bonds to warrant the issuance of capitalization, amount to $319,379,420.

Proof in this case shows that there is a large equitable value in the stock of the old company, which is proposed to be reserved as a stock interest in the new company for the old shareholders. The commission thinks the rights of all non-security creditors are fully protected under the law, as stated in the Boyd case (Northern Pacific vs. Boyd, 228 U. S. 482)

Objections of Stockholders

Two serious objections to the plan are interposed by protesting stockholders, to wit, that the provisions giving to the holders of five per cent income bonds the option to exchange such bonds for an equal par value of six per cent stock and the provision for the management and control of the new corporation for a period of five years by what is termed a voting trust. The commission, however, confines its inquiry to the objections made in so far only as the rights of the public are concerned. The commission thinks that the plan of reorganization should be regarded as a part of the articles of association or charter of the proposed new company in order to make it binding upon the company and all of the parties who are or may become interested therein. Under the plan $75,000,000 income mortgage bonds are to be issued, which bonds may be converted at the option of the holder into preferred stock. This option, if exercised, would result in an increased annual charge against earnings of $385,000 because the dividend on the preferred stock is one per cent higher than the interest on the bonds. The effect of this added charge is to postpone the right of common stockholders to participate in dividends to the extent of said increase. There can be no doubt that in conferring on the bondholders the right to convert bonds into preferred stock without the consent of the holders of common stock the plan of reorganization is inconsistent with the expressed language of the constitution of Missouri and of some of its statutes. The commission thinks that this provision would be against the public policy of the state.

The objection to the voting trust is the possibility of control and management of the company being placed in the hands of bondholders. Under the state constitution stockholders voting under accumulative system are given sole power in the selection of directors or managers of the corporation. If the business of the company should become prosperous, holders of income bonds could transfer themselves from the position of creditor to that of stockholder with power to participate in the control of the company. It is not improbable that the exercise of such option would result in wresting from the former stockholders the future control of the company. Holders of the common stock in a substantial amount are before this commission asserting rights under the law which they unquestionably possess as stockholders in the present company but of which they will be deprived under the proposed plan if adopted. If a new company is to be organized, the right of the stockholders in the old company should not be lightly

considered. The commission is of the opinion that the power given to income bondholders to convert their bonds into preferred stock without the consent of the common stock is inconsistent with the law and public policy of the state.

The Voting Trust Provisions

Four of the seven trustees under the voting trust are to represent bondholders, two to represent stockholders and the other is to be regarded as neutral. Control of the new company is, therefore, placed in the hands of the bondholders for five years. One of the leading cases against the validity of the voting trust is the Shepang voting trust (cases 60 Connecticut 553). The citation from this case ends with the sentence, "For these reasons I hold that this trust agreement is void as against the policy of the law of this state." The commission comes to the conclusion that the voting trust provided for in the plan of reorganization is against the public policy of the state of Missouri.

Conclusions

On account of the many commendable provisions in the plan, it is with reluctance that the commission has felt constrained to hold that the plan is in conflict with the state constitution and law in two particulars, namely, the convertibility of income bonds into preferred stock and the voting trust agreement. The commission will approve of the proposed plan agreement when it is duly presented to the commission provided that the plan is modified as noted above.

THE LATELY REVISED STANDARD CODE

By Harry W. Forman

In one particular at least—in agreeing on train rules—railroad managers have set an example that might profitably be followed by lawmakers. They not only have adopted standards, but often in so doing have sacrificed personal preferences and even good rules, in order to secure uniformity. The latest forward step in unification was the adoption of a revision of the already much revised standard code of train rules, at the fall session of the American Railway Association, held in Chicago, November 17 last.

It is generally conceded that a reasonable interpretation of any law may be depended upon when referred to the highest authority. And so it should be with this new code. The examiner thereon should be authorized to adopt the same course in lecturing; that is, explain the intent of the rules, the result hoped to be obtained, and the manner in which his company desires them obeyed. Employees should not be entirely robbed of the discretion that may be desirable in some emergency, by saying to them that they positively must never use their judgment to vary a rule.

About fifteen years ago I strongly advocated a new railroad department, that of train rules. This idea, where put in use, has proved highly satisfactory and has been helpful in securing uniform practices and one general understanding of rules and train-order forms. I again urge all managers to make any sacrifice necessary in order to maintain at least one competent and experienced train-rule man, allowing him to give this department his undivided attention.

The present time—the adoption of a revised code—will be a suitable opportunity to have a heart-to-heart talk, and I want to say a word to lecturers and examiners, and also to those train masters and chief despatchers who so often have to assume this additional duty.

Not all examiners are keeping pace with the spirit of the age. Years ago the ideal examining board was thought to be a train despatcher, a conductor and an engineman. They invariably began examinations with the question, "What is a train?" and laboriously plodded through the entire book, consuming about ten hours in the examination of a half dozen men. These employees were exhausted mentally within two or three hours, and thereafter looked at the examiners in a half-dazed state, hair disheveled, eyes sometimes bloodshot, and a May-God-and-the-Examiner-have-mercy-upon-my-soul-(and-job) expression of misery. This was clearly apparent in their every answer, or stagger at a satisfactory answer. I wonder how an examiner would like to have to attend church and give his undivided attention to what the preacher was saying for this length of time? How much of the sermon would hold his attention and stimulate his brain into a painstaking analytic condition after even the first forty minutes?

The ideal board of examiners of the future should consist of a competent rule man and a block system expert. Ordinarily, they should work only three hours a day, except when necessary to hold an additional session at night. The board members should devote much of the remaining time thinking what not to say; or rather, how to boil down their examples and instructions so that every minute of a ninety minute session may prove so interesting, by reason of crisp, entertaining and brief language, that their audience will not get into the condition mentioned above. Call the morning class for 9:30, dismissing them at 11; afternoons from 2:00 to 3:30. Begin the night meetings at 8 o'clock, or as near that hour as the arriving time of local trains will permit. Never, except in an emergency, require a man to pass an examination without first having heard a lecture or two on the rules. Devote as much time to actual cases of proper and improper flagging under Rule 99 as to time-table changes under Rule 4.

First of all, lecture to the train despatchers; and after having obtained permission to use certain necessary forms not printed in the book of rules, insure their constant and exclusive use thereafter by convincing despatchers of the necessity therefor. Explain these orders to other employees also, so that there will be but one understanding under them. Get rid of some of the so-called shortcomings of the American train despatching system by recommending for adoption forms of orders which it will be absolutely impossible to misunderstand. For instance, possibly there may be on your road a form of order reading, "No 1 meet No 2 at B No 4 at C and No 6 at D. No 1 take siding." If, for the sake of brevity, it is insisted that the "take siding" instructions be mentioned but once, at least make the order read, "No 1 take siding at B C and D."

Do not understand me as favoring the latter form of order, however. I prefer only one kind of train orders, and that the kind that cannot be misunderstood. Everything relating to a particular movement should appear in only one place in the order providing for such movement. The length of an order, while perhaps burdensome where despatchers are unusually busy, is with me a second consideration. I would make everything so clear to the trains that they could not possibly go wrong in their reading. This is vital even though other trains were thereby made to wait for orders. To end an order by instructing No. 1 to take siding at B, C and D is not only troubling the crews to look in two places in an order to arrive at a full understanding as to what must be done at each meeting point, but it is objectionable for the further reason that should a part of the order be superseded, or some of the trains mentioned be annulled, No. 1 must still take siding at B, C and D, since that part of the order is not also automatically made void. Many may not so understand. I favor putting a stop to all contention in the future by making use of forms similar to the following: "No 1 hold main track, meet No 2 at B Hold main track meet No 4 at C Hold main track meet No 6 at D." Or, for example, "No 1 hold main track and meet No 2 at B and take siding and meet No 4 at C." Should it become necessary to supersede an order containing instructions as to holding main track or taking siding, would again instruct thus, "No 1 hold main track (or take siding) and meet No 2 at C instead of B."

When a train is given its first notice of restriction at the place of meeting, use the form, "No 1 gets this order and will hold main track and meet No 16 at E instead of F." Do not give a chance for the assumption that the words "gets this,"

"receives this," or "gets this order," mean that the train advanced beyond its original meeting point can assume that No. 1 will be on the main track and that No. 16 must therefore take siding. Being superior by direction, No. 16's crew might get the impression that No. 1 would go on the siding after having acknowledged the order, while the men at No. 1 might contend that an order so worded authorized them to stand on the main track. The crew of No. 16 must be informed that responsibility for collision under an order of this kind rests entirely with them, as No. 1 may pass the point where No. 16 is to take siding at E before being informed of the change in meeting place. The foregoing examples, of course, refer to cases where the despatcher interferes with the time-table superiority of a train.

When a train finds it necessary to precede a following train from a non-communicating station, by reason of its having lost its "head rights," as some call it, are examiners instructing the crew of such train to familiarize themselves with the orders held by the train which they run ahead of? In particular they should be told not to pass any station in advance of such train's time-table or run-late time.

When the part of the lecture dealing with double track is reached, do not treat it lightly, or be satisfied with instructing that trains must keep to the right, etc., but go into the matter as deeply as may be necessary. Warn emuloyees of ulterior dangers, ever present in operation, but not always to be found in books of rules. Explain just where a train must clear under an order helping it to the end of double track against an opposing superior train. Also, instruct the designated opposing train where to wait, either at the end of the double track, or at the double track to a connection with the single track. Try to get the matter settled by bulletin, or, better still, by special instructions in time-table. Failing in this, so word the orders that a misunderstanding will not arise. When a train is run against the current of traffic, make it clear where it may go (at the station last named in the order) to regain its own track, and where the opposing train must wait.

On your double track, are regular trains passing stations in advance of their schedule or run-late time? Are work extras, working under orders not to protect against extras, assuming that regular trains will not leave stations ahead of time and, on this assumption, running against such opposing trains, clearing their time only five minutes? If these conditions actually exist with you, take such steps as may be necessary to insure safety under them. It is a waste of time to declare that a train has no right to pass a station ahead of time, and stop there. We know they sometimes do it, especially on entering yard limits, or where time is shown for trains at stations within such limits.

When, for example, a westbound train stalls and finds it necessary to double or cut off engine and run for water, on which track does the engine return to its train? Does it go back on the westward or eastward track? If it moves on the eastward track, what is to prevent collision with some other train which may be directed to run against the current in order to get by the delayed train? If the engineman intends to return on westward track, and there happens to be a junction or crossover between where the train is left and the setout track, or water station, are you instructing that a flagman must also be left at all such points to keep other trains from coming in between such engine and its train? Where an engine is detached from its own train to assist another up a hill, and passes a freight train, work extra, or some other engine, while performing such service, what instructions are you giving the crew of the temporary helping engine in order to insure against collision while on its return trip?

It is such matters as these, rather than deep, technical problems, that ought to engage a large part of the attention of the examiner. We have passed the "What is a train?" milepost. I need not go further into detail, for is it not true that after a year or so an examiner who is permitted to devote all of his time to inspection and lecturing will have in his possession a mass of such facts? He will have enough to enable him to formulate a new and decidedly interesting lecture at least once a year; one that will keep his listeners wide awake. And will he not be accomplishing more for his company in this way than were he to simply engage in routine examinations from day to day? Brevity in dealing with any one rule will allow more time in which to touch on a greater number of subjects. The idea is to get employees to thinking.

On a recent trip covering several thousand miles between the Atlantic and the Pacific, I heard the whistle for public crossings sounded correctly less than fifty times. I also heard quite a number of enginemen try to go Heinz one or two better in the matter of varieties. When it is remembered that the highway crossing whistle somewhat resembles the whistle signal used to call attention to a section following, and that often there are highway crossings about stations where inferior trains may be waiting on sidings, it will be readily seen how, in time, slovenly whistling is pretty likely to bring about a collision that a little care would have prevented. With some enginemen the most popular crossing whistle seems to be two long, one short, and one very long sound. Again, there are many who at last get all of it out of their systems in a reasonably correct manner, yet who allow so much time to elapse between each two blasts that the crossing is reached by the time the last laborious effort at holding down the whistle lever is finished.

Calling for signals, and recalling flagmen, with four blasts of the whistle, is so generally made improperly that four blasts of any length is everywhere permitted for either occasion; and very little is thought of it. But any one who seriously considers the question must see that a sharp distinction should be insisted upon at all times; for often it is necessary to make use of four short blasts while the train still needs rear protection.

Having often been at stations at night and observed so much carelessness in the matter of keeping lights on engines burning brightly, I feel warranted in taking issue with those officers who contend that whistling to call attention to signals displayed is of no great importance; that employees of other trains who must know are required to examine engines as they pass in order to discover this fact. I have more than once seen the first section of a train pass a station at fifty miles an hour without either classification light burning. I have not only witnessed this, but also noticed that the whistle calling attention to signals was not sounded properly. Feeling discouraged at the condition on my own road I decided one night to see how well my neighbors were doing. At one junction point only one of their freight trains in five had all of its night signals properly displayed. An inspection of the record of these guilty men will generally show that they attained a high book percentage when before the board of examiners for a certificate of qualifcation. So the conviction is forced upon me that to examine without also inspecting the work of the men on the road (when they are not expecting you) will never secure satisfactory results. Leave your examination car at one station and go yourself to some other and remain there for a time

Before closing, bear with me just a little longer in order that I may relate an experience I had only a few days ago—one of hundreds. Within yard limits in quite a large city, we passed a bad wreck; engines, passenger coaches and freight cars were piled up on either side of the track. It seems that, the day before, the train that I was on had attempted to recover time by exceeding the prescribed speed limit. The newspapers stated that the passenger train was running about sixty miles an hour and collided with a freight train, which was on the main track and not properly protected against such speeding trains. Within sight of the collision I noticed a "Safety First" sign which could not have cost less than a dollar and a half. While seated at a table in a restaurant in Los Angeles the next evening I observed on the wall above me a little placard, reading: "The greatest safety device yet discovered is a safe man." That night in a room in the Hayward Hotel I found a Bible on my dresser. Opening it at random I was confronted with the truism that faith without

works is dead. Will any one contend that this was the first time in the history of that road that a passenger train had run at that speed under similar circumstances, or that never before was a freight train known to occupy the main track on the time of a first-class train without flagging properly?

These are only a few of the reasons why I contend that examiners have passed the "What is a train?" period of usefulness, and that the train rule examiners of the future must broaden their field of operation and observation. They must give more attention to matters not specifically mentioned in their books of rules if they hope to elevate their calling and make themselves indispensable.

A lecturer or examiner may of course introduce enough variety to be entertaining, but he should not take up the time of his audience discussing matters foreign to the work at hand. About ten per cent of his listeners are present from choice; the rest are there from necessity. They desire to get away as quickly as possible. Therefore, any deviation or unnecessary talk that merely consumes time is only an annoyance to them. The lecturer must be sincere and gentlemanly. He should never be guilty of speaking of the shortcomings of an employee, or of another division or road. Neither should he openly offer adverse criticism of discipline administered by a superintendent. The employee demerited may have a decidedly poor record.

In another paper I propose to discuss such code rules as were changed, and an effort will be made to show how an examiner should handle them in order to secure satisfactory results. There is a way.

THE NEW HAVEN BLOCKADE OF DECEMBER 13

Some account of the unparalleled interruption of traffic on the New York, New Haven & Hartford between Woodlawn (New York City) and New Haven, a distance of 60 miles, on the 13th, 14th and 15th of December, was given in the *Railway Age Gazette* of December 17, page 1164, and December 24, page 1179. From data since gathered it is possible to give a few additional particulars.

The wind at one time reached a velocity of 75 miles an hour, and the sleet froze on the wires to an average thickness of 1⅜ in., the total diameter over the ice in many instances being 3¼ in.

By six o'clock on Monday evening (the 13th) the telegraph and telephone wires on the wooden poles were lying in a tangled mass on the ground, with perhaps 50 per cent of the poles lying on the ground with them. The smaller communication and control wires carried on the catenary structures held up better, but even they came down in numerous places. The stronger transmission and feeder wires did not fail at any point from the weight of the ice alone, but in one or two isolated cases they did fail because of a broken insulator, a grounding arc through snow on the insulators or a short circuit caused by smaller wires falling from above. The catenary trolley system did not fail at any point at any time.

All efforts on Monday and Tuesday were, first, to restore "communication" with the sectionalizing bridges so as to determine the extent and location of the trouble and, second, to get the "control" wires through to these bridges so that trolleys and feeders could be sectionalized and tested out.

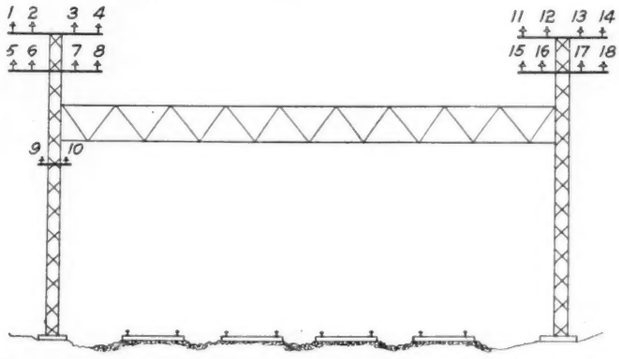
All forces were concentrated on the line west of Stamford (20 miles) as steam operation could be carried on more conveniently between Stamford and New Haven. With the telegraph and telephone companies also in trouble, the gathering of outside repair men was very slow. Finally 150 men were found, and these, with the two regular emergency crews, worked day and night for 48 hours, under severe conditions, to get the important wires back in service. During a large part of this time the wind was so high that the men had to wear handkerchiefs over their faces to protect themselves from the driving sleet.

Finally on Wednesday afternoon about three o'clock electric operation was started between Woodlawn and New Rochelle. From that time on as additional sections of the signal, communication and control wires were re-established the electric train service was increased, until Sunday, December 19, traffic conditions were again about normal.

In the meantime some suburban trains were run with steam locomotives; but with stops at every signal (all signals being dead) speeds had to be "under control" practically all the time so that there was no semblance of regular schedules.

The question naturally arises when considering this tie-up—why was electric operation impossible if the electric traction current was available at all times? The answer is that the "communication" wires and the "control" wires carried on the steel catenary structures were completely out of service.

The "communication" wires are used by the load despatcher, who is located at the central power station, to keep in touch



Supports for Electric Conductors, New York division, New York, New Haven & Hartford; Looking East

with the tower operators at the different sectionalizing bridges along the line. The "control" wires furnish the power for operating the remote-control sectionalizing circuit-breakers which are located on the bridge and are connected in the transmission feeder and trolley circuits. Normally, when a ground, broken wire or other trouble occurs, the bridge operator nearest the trouble "calls up" the load despatcher over the "communication" wires and makes a report of the trouble, giving details as to its nature and location. The load despatcher immediately refers to his transmission, feeder and trolley diagrams and determines what sectionalizing switches should be opened to successfully

Sketch No.	Circuit	B. & S. Gage No.
1— 2— 3—	North three-phase transmission wire	0000
4—	Feeder No. 3	0000
5— 6—	11,000-volt signal circuit	3
7—	Control No. 1	3
8—	Feeder No. 1	3
9— 10—	Telephone "Communication"	10 Copper Copper Clad Steel
11—	Feeder No. 4	0000
12— 13— 14—	South three-phase transmission wire	0000
15—	Feeder No. 2	0000
16—	Control No. 2	3
17— 18—	22,000-volt signal circuit	3

isolate the trouble and what switches must be closed to make use of the duplicate transmission and feeder lines. His decision made, he instructs the bridge operator to operate certain switches and, if the trouble is serious, orders out the emergency crew. In such a case, after the trouble is isolated and the extra feeders, etc., are thrown into service, electric operation on other parts of the system can be continued as though nothing had happened. Furthermore the emergency crew can be given definite instructions regarding the nature and location of the trouble, which fact greatly minimizes the time required to make repairs. With these facts in mind, it is easy to understand

how a few minor grounds or breaks in the transmission, feeder or trolley circuits could tie up the entire system if all "communication" and "control" wires and circuits were out of order. If these troubles could have been isolated and if the extra duplicate circuits could have been connected in there would have been no interference with the electric operation except that caused by the snow on the track, which was not very serious.

A typical steel catenary support structure with its transmission, signal, control, communication and trolley wires is shown in the illustration. A table giving the B. & S. gage number and circuit reference of each wire is shown on preceding page.

On one section of the line an old No. 00 feeder was being used as a control wire, and it weathered the storm successfully. This size (00) is about ⅜ in. in diameter, whereas the regular control wire (size 3) is only a trifle over ¼ in. in diameter. Size 0000 is a trifle over ½ in. in diameter. Size, 10 is ⅛ in. The difference in area of cross section of the two wires is approximately as 73 to 29.

To provide a quick temporary means of telegraph and telephone communication, the telegraph department, immediately after the storm, started to lay 30 miles of two twisted-pair wires along the right of way. These wires were strung on the catenary structures, on fences and on the ground; any way to get through. Later a 20 pair cable was laid out in the same way.

THE PAN-AMERICAN CONGRESS

By W. L. Stoddard

Washington, January 12, 1916.

Among the many notable papers read at the Second Pan-American Scientific Congress, which concluded its session here last week, were several on railroads. These papers received little detailed mention in the daily press for the very simple reason that at the time literally hundreds of learned papers were being delivered in Washington at meetings and conventions and space forbade extended notice. Apparently the feature of the congress so far as transportation matters was concerned was the address by Alfred P. Thom, general counsel of the Southern Railway, on the relation of central to local control in the regulation of public utilities.

On December 31 the session opened in the morning, under the chairmanship of President Fairfax Harrison, of the Southern Railway. Dr. T. N. Carver, of Harvard University, read a paper on "The Advisability of Collegiate Courses on Marketing and Distribution," and G. C. White, of the federal department of agriculture, read one on "Improved Transportation Service for Perishable Products." President Harrison discussed Mr. White's paper laying emphasis on the constructive work done by the railroads—this being in answer to some criticisms of the writer's.

At the same session J. S. Crutchfield, of Pittsburgh, Pa., read a paper on "Car-lot Distribution," commenting on which the chairman made some remarks about the status of the middleman, "an important factor in the economic development of the country." The session closed with the discussion that followed a paper by T. F. Powell on "Opportunities Afforded the Railroads by the Federal Agricultural Extension Act." The bulletin of the congress reports the discussion as follows:

"The chairman stated that some of the suggestions made in this paper have been already recognized and put in practice by the railroads, and that he himself is connected with a railroad doing this work in the South. The railroad working in co-operation with the county agencies expends money every year on this service. He referred to the part taken by the railroads in the Pan-American policy and mentioned a road that has more than a thousand boys studying Spanish and preparing themselves for work in which this language is required."

On January 6 the railroad session, as reported officially, was presided over by Dr. E. L. Corthell, and the subject for discussion was the special Pan-American topic of uniform railway gage in Pan-America. This subject came up at the first congress, held in Chile. Mr. Periera da Silva, of Brazil, discussed uniform gage in Central and South America. Mr. Vicuna, of Chile, discussed uniform gage for Chile, and Mr. Lavis, of New York, discussed the same thing for Pan-America. Mr. Lavis inclined to the belief that eventually the standard gage of the United States should and would be adopted generally throughout the two continents.

Mr. Thom spoke on January 4, and while his address will undoubtedly find full publication shortly, a few extracts may prove of interest at this moment.

"Transportation," he declared, "lies at the very foundation of the national power to mobilize its military and economic resources and thus to perform this essentially national function. This consideration gives to the instrument of transportation a national importance and a national aspect which are entirely part from, although completely in consonance with, the needs of peaceful commerce. From this standpoint it is essential that the national policy—the policy dictated by the transportation needs for national defense, and not a mere local policy—should control the standard of present and continuing efficiency by which these transportation instrumentalities must be governed. The public mind is making marked progress toward the conclusion that if a nation is to be in a condition to defend the national interest and the national rights, the efficiency of the instruments of transportation cannot be intrusted to the varying views and standards of small communities on which the duty of national defense does not constitutionally rest, but must be confided to the power responsible for the protection of our national welfare and the preservation of our liberties as a people."

MURRAY KEYOKE

A new design of hinged coupler yoke has recently been placed on the market by the Keyoke Railway Equipment Company,

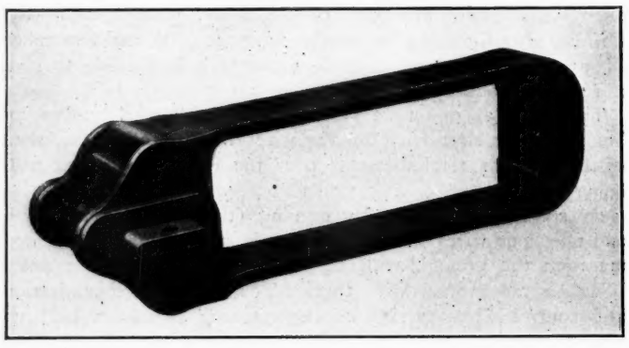


Fig. 1—Murray Keyoke.

Chicago. It differs from the hinged coupler yoke previously made by that company in that it has a pinless interlocking hinge

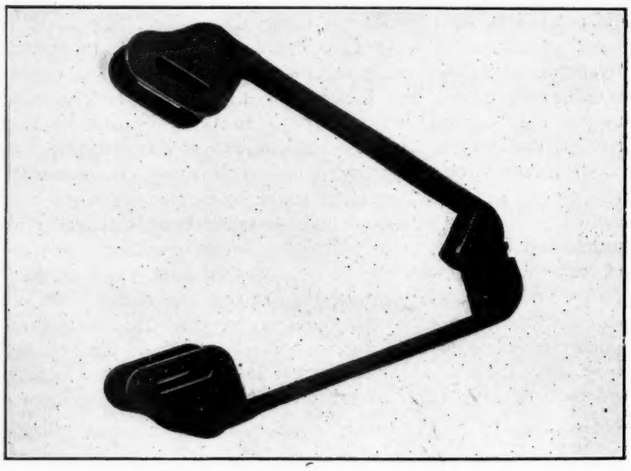


Fig. 2—Keyoke Open.

instead of the pin hinge. Its construction is clearly shown in the illustrations. Fig. 1 shows the yoke in the closed position; Fig. 2 in the open position and Fig. 3 shows the yoke designed for use with a tandem spring gear. The yoke can be adapted for use with any design of draft gear. It is made of two open hearth thoroughly annealed steel castings, joined together at one end by the pinless interlocking hinge and at the other end by a standard 1⅛ in. by 5 in. coupler key.

The coupler end of the yoke is designed to fit accurately over the lugs on the end of the coupler, the pulling strains being taken on these lugs instead of on the coupler key, the latter serving principally to lock the yoke to the coupler. This feature

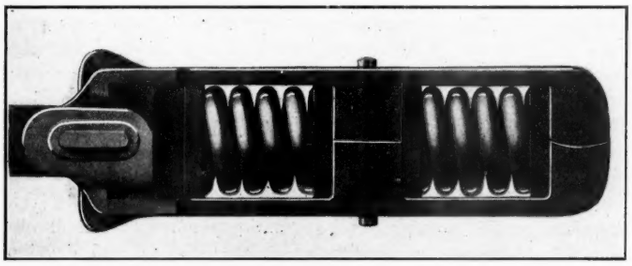
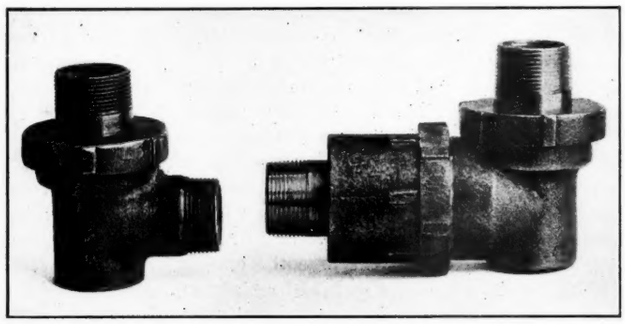


Fig. 3—Murray Keyoke for Tandem Spring Gear.

is of special advantage in that the wings of the yoke will be subjected to but little stress, with the result that the key slots will not wear as readily and become elongated. This eliminates the lost motion and prevents the opportunity of failure at this point. This design brings the load directly to the upper and lower members of the yoke. Destruction tests have shown that a yoke of this type having a cross section of 1 in. by 5 in. will fail at a load of 474,000 lb. in these members, while wrought iron yokes made of 1¼ in. by 5 in. material and riveted to the coupler failed at a load of 245,000 lb., due to the shearing of the rivets. The gibs of this latter type of yoke, which are simply bent in to engage the lugs on the end of the coupler, break off at 254,000 lb. With the key connection and the hinged end it is possible to replace the coupler with but little trouble, no riveting or other blacksmith work being required.

FLEXIBLE PIPE CONNECTION

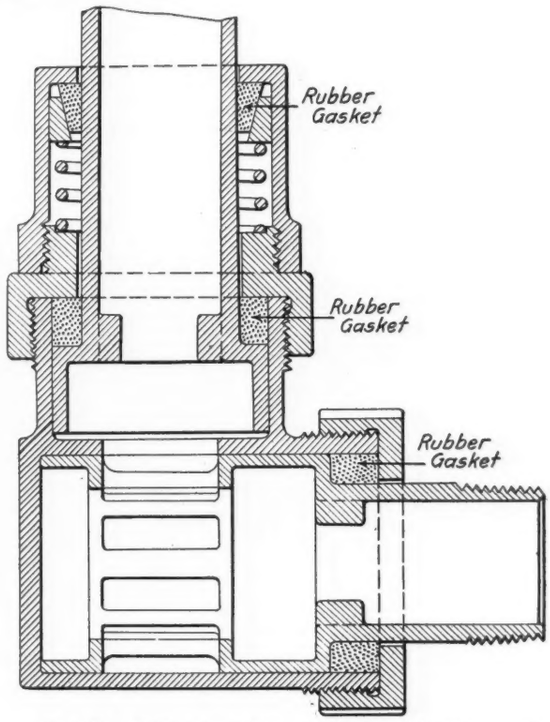
A new type of McLaughlin flexible conduit has recently been developed for use between the engine and tender. As shown in the photograph, this is made in both single and double types, the construction of the latter being indicated in the drawing. The



Single and Double McLaughlin Flexible Connections.

single joint is similar to the horizontal part of the double joint.

A consideration of importance in connection with this type joint is the freedom of movement at all angles. Another feature of the double joint is the use of two gaskets on the vertical branch. The device hangs near the center of gravity and is claimed to be less liable to leak than other similar devices. Should the main gasket become worn or break because of excessive wear from the weight of the conduit, the upper gasket will still prevent leakage. The lower or horizontal part of the joint is of ample proportions, thus reducing the friction through the joint to a minimum.



Details of Construction of the Double Connection.

The patent on this device is held by M. P. McLaughlin, Wakefield, Mass.

CLAIM PREVENTION CAMPAIGN ON THE MICHIGAN CENTRAL

The Michigan Central has been conducting a claim prevention campaign for several months, with unusual success, in the effort to create greater efficiency and improve its service. A special effort has been made to create an effective organization, to enable each division superintendent to keep in close touch with freight loss and damage (so far as his division is concerned) through the medium of divisional committees, which in turn report to a central committee, presided over by the freight claim agent and the general superintendent.

On June 1, 1915, an O. S. & D. bureau was established as an adjunct to the office of the freight claim agent, and a district freight claim agency was opened at Chicago to further assure the elimination of loss and damage, as well as the expeditious adjustment of valid claims.

Each divisional committee considers every phase of loss and damage, and in event a decision cannot be reached on any question or recommendation that is brought before it, a subcommittee is appointed to give special attention to the subject, reporting its findings to the chairman, who handles the matter to a speedy conclusion. The subcommittees have to do with O. S. & D. work, seals, rough handling, improper stowing, marking, etc., giving preference to freight more highly susceptible to damage—such as fresh fruits and vegetables, eggs, flour, etc.—to insure better inspection of equipment at junction points, loading and stowing of household goods, proper marking or packing of l. c. l. freight, etc. The necessary corrective measures are applied when within the jurisdiction of the divisional officials, the central committee eventually handling such subjects as the divisional committees are not in a position to dispose of.

Claim prevention postals have been sent to division superintendents for distribution among all employees concerned, with instructions that practices or conditions liable to cause claims be

noted thereon, as the occasion demands, and that the cards mailed to the chairmen of the division committees for consideration and the action deemed necessary.

The loss and damage bureau, in addition to this, sends out special investigators who instruct agents, trainmen, yardmen and others as to the proper handling of traffic, carload or less, not only in transit but at point of origin and destination as well.

Some interesting literature has been prepared in the interest of the crusade, including a pamphlet entitled, "An earnest appeal from the Michigan Central Railroad to every employee who in any manner has to do with the billing, handling or transportation of freight." This points out to the employees the importance of the problem, and shows how each man can co-operate in the effort to reduce claims. Another pamphlet is entitled "Interesting suggestions to shippers regarding prevention, presentation and adjustment of freight claims," and appeals to the shipper for co-operation, as well as giving detailed instructions. The observance of the instructions contained in both pamphlets has the effect of preventing the occasion for claims.

Other novel ideas for maintaining the interest of employees in the campaign have been adopted, including placards, stamps, etc., each bearing some terse suggestion.

When the plan was adopted, on June 1, placards were distributed among the employees announcing that a special effort would be made to accomplish a saving of $100,000 for the year. On November 1 the net reduction, as compared with the corresponding period the previous year, was considerably in excess of that sum.

The reduction in loss and damage payments on the Michigan Central is in no way attributable to the withholding of legitimate adjustments, as valid claims are paid promptly as soon as the liability is established.

REGULATION OF PUBLIC UTILITIES*

By C. A. Prouty

Director, Division of Valuation, Interstate Commerce Commission.

In determining the measure of success which has attended government regulation of public utilities up to the present time, the thing aimed at must still be kept in mind. That thing is the good of the public. The government itself might render for its citizens the services which are rendered by the public utility. While this is no discussion of government ownership, still there must be some standard by which the test of success is to be applied and the inevitable question in the minds of all people must be, can the government obtain as favorable results by regulation as it would obtain if it rendered the service itself?

It will be remembered that there are two points at which the patron of the utility is affected—the service which is rendered and the price which is charged. So far as the service is concerned the regulation commission has or may have the most perfect control. Take for illustration the street railway. It can prescribe the kind of cars to be used, the sort of track upon which those cars shall be run, the frequency with which and the speed at which they shall be operated. Every item which enters into the rendering of that service for the public is under the control of the regulating tribunal.

And this is true of all utilities. The government may fix the standards of construction and determine the conditions of operation. It can impose upon the utility by its orders whatever it might itself do if it were actually rendering the service. And if the order be not obnoxious as an excess of authority or in violation of constitutional limitation, the utility can be compelled to obey its requirement.

The next thing is the rate, and here the control of the government is even more complete than with the service. To-day most utilities are required to publish for the information of the public the rates to be charged for the performance of their services and are not permitted to collect different rates under heavy penalty. While the utility is generally allowed to make its own charge in the first instance, that charge is subject to alteration by the commission. The government may, in effect, fix the rate which the utility receives.

If the sole purpose be to protect the patron of the utility or the general public against abuse, the government can exercise the same restraining influence through regulation as though it operated the utility itself.

But there is a reverse side to this protective shield. A given service cannot be rendered unless the utility possesses adequate means to the end. Freight cannot be transported without cars and engines. The government may order the utility to provide itself with those facilities which are needed for the rendition of the service, but it cannot compel this unless that utility has the money with which to procure what is needed. When the utility is operated by private capital this money must come from private investment, while the government can provide by taxation, if necessary, the needed means. No law can force private capital into investment in a public utility. If, therefore, under governmental regulation the utility cannot obtain the necessary funds with which to maintain and develop its property in such degree as to meet the demands upon it, the service must be impaired.

This is the point at which regulation will break down if at all. Can private capital be induced under the treatment which is accorded that capital by the regulating body to invest? If government ownership ever comes in the United States it will probably be because private capital cannot be obtained in sufficient amounts to afford an adequate service.

Up to the present time such has not been the case. The large amounts of private capital which are invested in public utilities are of little value except in the operation of the utility itself. If, therefore, the government directs a railroad to do a certain thing, the property invested in that railroad must in self-protection obey that order. This will be done until the credit of the company has been exhausted. Effective and comprehensive regulation is of recent date and its final effect upon the investing public has yet to be demonstrated by actual experience.

Up to the present time in this country regulation has resulted in much benefit to the public. Facilities and service have been distinctly improved and there is no reason why the beneficent effect in these particulars should not continue. Rates have been reduced. The tendency is that way. The public which pays the rates and which has little idea of what a reasonable rate is naturally desires to pay less. The commission which decides is inevitably influenced by public sentiment. Can rates be advanced as well as reduced?—until that question is answered the success of regulation cannot be assured, for an adequate service must be had; that service cannot be provided without adequate means and the money cannot be obtained from private investors unless a sufficiently attractive return is assured.

What this rate of return must be will depend upon the kind of utility and the conditions surrounding it, but in all cases it must be distinctly higher than the rate at which the government itself could borrow the money invested in the utility. Whether the government can afford to regulate will be the final inquiry. Up to the present time the experiment of regulation has hardly gone far enough to determine its ultimate success.

*From an address before the Pan-American Scientific Congress, at Washington, D. C., on December 28, 1915.

THE BERLIN-CONSTANTINOPLE RAILWAY.—The German railway administration has just issued the new time-tables for the Berlin-Munich-Constantinople trains, according to the Rome correspondent of an English paper. These trains will not go through Belgrade, because the bridge over the Save is still broken and the Ripanj tunnel destroyed. They will follow the route Berlin-Munich-Budapest-Temesvar-Verschez; they will cross the Danube at Semendria and reach Nish by a secondary line. Thence they will proceed to the Turkish capital.

Railway Age Gazette

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GENERAL NEWS SECTION 71

* Illustrated.

General News Department

The Chicago & Alton has adopted the Brown system of discipline.

The Chicago & Alton has reached an agreement with its telegraph operators providing for an increase in pay, averaging about five per cent.

The will of the late Gen. Grenville M. Dodge provides a sum of $50,000 for the establishment of a library for railroad men at Council Bluffs, Ia.

The three-story depot of the Adams Express Company, at Cincinnati, Ohio, was destroyed by fire January 7; estimated loss, including contents, $200,000.

A bill has been introduced in the lower House of Congress to require railroads to install safety devices at highway grade crossings. It would empower the Interstate Commerce Commission to order the installation of audible or visible devices.

A string of empty freight cars, about 25 in number, was destroyed by fire on an isolated side track of the Southern Railway, near Lynchburg, Va., on the night of January 6. It is thought that the fire was started by a tramp who was trying to warm himself. The cars were all destined for the shops to be repaired.

The Chicago city council, at a meeting on Monday, authorized its railway terminals committee to open negotiations with officers of the Illinois Central and other railroads entering the city from the south, with a view to relocating the Illinois Central station and concentrating in it the terminal facilities of as many roads as possible that now enter the Dearborn station, the LaSalle street station and Grand Central station.

The Chicago, Burlington & Quincy has issued a circular letter to employees stating that there was a reduction of $275,000 in loss and damage payments on the road in the 11 months ending November 30, 1915, as compared with the corresponding period for 1914. While congratulating all concerned on the saving of $823 a day in claim payments during the 11 months mentioned, employees are urged to co-operate to make a better record for the next year.

The Southern Pacific reports that 525 vehicle drivers did their best to break into a railroad crossing accident in the two years ended June 30, 1915, despite the fact that gates were down and warning bells ringing. In each case the crossing gates were broken. The gamble taken by the drivers is obvious. To be broken, the gates had to be down, and the gates are down only when trains are approaching. Recent observations at various crossings showed that of 17,021 motor drivers, 11,836, or 69½ per cent, looked neither way before crossing the tracks; 2.7 per cent looked one way only and but 27.8 per cent looked in both directions. One in every five of the drivers ran over the crossings at a reckless rate of speed. Only 35 stopped their machines before crossing the tracks.

Sixteen Passengers Killed at Jarrow, England

In the wreck of a passenger train on the North Eastern Railway of England, at St. Bede's Junction, Jarrow, a short distance from Newcastle, December 17, caused primarily by a rear collision, 16 passengers and one fireman were killed and 50 or more passengers were injured. The wreck took fire from live coals in one of the three locomotive fireboxes concerned, or from illuminating gas in a car, and all of the bodies of the passengers were burned beyond recognition. The fire spread so rapidly that it is not known to what extent the victims were injured before the fire reached them.

A freight train had been helped by a pushing engine to the top of a grade, and there the pusher was cut off. It appears that the signalman overlooked the fact that the pusher was standing on the main track and admitted a following passenger train to the block section. This train collided with the pusher; and one or two of the passenger cars fell over on an adjacent main track. On this track another train (empty passenger cars)

was approaching, and it struck the wreck before there was time to take any measures to stop it. What injuries were suffered by the passengers from the collision is not known, as the third train came on within a very few seconds. All of the locomotives were badly wrecked, but only three passenger cars were seriously damaged.

American Railway Engineering Association

The following Committee of Arrangements has been appointed to prepare for the annual convention of the American Railway Engineering Association, which will be held in Chicago on March 22-25, inclusive. F. R. Coates (Toledo Street Railways, Toledo), chairman; G. H. Bremmer (I. C. C.), Chicago; W. A. Christian (I. C. C.), Chicago; J. D. Cox, Chicago; L. C. Fritch (C. N.), Toronto; E. H. Lee (C. & W. I.), Chicago; William McNab (G. T.), Montreal, and W. A. Wallace, Chicago.

The National Railway Appliances Association has also appointed the following members of its Enrollment Committee: I. L. Hench, Lackawanna Steel Company, chairman; A. H. Kurest, Detroit Graphite Company; A. Van Zant, Carnegie Steel Company; A. R. Sutter, P. & M. Company, and L. M. Mathews, Fairbanks, Morse & Co., all of Chicago.

A Clearance Bill

A bill establishing clearances was introduced in the United States Senate on January 6, by Senator Thompson, and was referred to the Committee on Interstate Commerce. This measure is entitled, "A bill to promote the safety of employees and travelers on railroads by requiring common carriers engaged in interstate commerce by railroad to afford a safe and sufficient clearance between structures located on their roadways and locomotives and cars passing over their lines, and for other purposes."

It applies to all common carriers and stipulates that, after six months from its passage, the lateral clearance between cars or locomotives and tunnels, warehouses, coal chutes, stockpens, poles, mail cranes, embankments of earth or natural rock, or any other structures or obstructions shall not be less than 36 in., and the clearance between the top of the equipment and any overhead wires, bridges, viaducts or any other obstructions except tunnels shall not be less than 6 ft. This requirement does not apply to station or freight house platforms having a vertical height of not more than 3 ft. 11 in. above the top of the track rail.

The act further provides that within 6 months from its passage, every common carrier subject to its provisions shall report to the Interstate Commerce Commission the number of obstructions which do not afford the minimum clearances specified with reasons why such clearances should not be made to apply. The Interstate Commerce Commission is given authority to extend the period within which a carrier shall comply with the provisions of this section provided work leading to the securing of this clearance shall have been commenced within this 6 months. It is also stipulated that the carrier shall assume the sole risk of accidents resulting from failure to comply with this requirement. A further provision stipulates that it shall be unlawful for any road to permit the space between such of its tracks as are ordinarily used by yardmen and other employees in the discharge of their duties to become or remain obstructed by any obstacles that will interfere with the work of said employees or subject them to unnecessary hazard.

The carrier is subject to a penalty of $500 per day for each violation, each day that any locomotive or car is operated in violation of this act being considered a separate offense. It is made the duty of the Interstate Commerce Commission to enforce the provisions of this act.

Proposed Demands of the Enginemen and Trainmen

As reported in a previous issue, committees representing the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, at a meeting in Chicago last month, formulated a proposition providing for payment for their services on the basis of an 8-hour day or 12½ miles an hour, and time and one-half for overtime, to be submitted to the membership of the four organizations, and other employees of the classes represented for their approval or rejection. The proposition, containing four articles, is being sent out to the employees under date of January 10, on the form of letter ballots on which they are requested to vote for or against the submission of the proposition to the officers of the various railroad companies. The ballot authorizes the chief executives and authorized committees of the organizations to act as agent or attorney for the employees 'upon all questions that may arise in connection with the negotiations between the officers of railway companies and organizations necessary to a favorable settlement of the articles to be submitted (with the understanding that this is not to be regarded as a constitutional strike vote.)" The proposition as printed on the ballot is as follows:

Article 1. (a) In all road service 100 miles or less, eight hours or less, will constitute a day, except in passenger service. Miles in excess of 100 will be paid for at the same rate per miles.

(b) On runs 100 miles or less overtime will begin at the expiration of eight hours.

(c) On runs of over 100 miles, overtime will begin when the time on duty exceeds the miles run divided by 12½ miles per hour.

(d) All overtime to be computed on the minute basis and paid for as time and one-half times the pro rata rate.

(e) No one shall receive less for eight hours or 100 miles than they now receive for a minimum day or 100 miles for the class of engine used or for service performed.

(f) Time will be computed continuously from time required for duty until released from duty and responsibility at end of day or run.

Article 2. (a) Eight hours or less will constitute a day in all yard and switching service. The minimum day's pay for eight hour yards shall not be less than the present day's pay for 10-hour yards. Provided that in yards having a minimum day of more than 10 hours, the present day's pay as in effect January 1, 1916, will be continued with the eight-hour day.

(b) Time to be computed continuously from time required for duty until released from duty and responsibility at end of day or run. All over eight hours within any 24-hour period to be computed and paid for at the rate of time and one-half time.

(c) All overtime to be computed on the minute basis.

Article 3. (a) Eight hours or less at present 10-hours pay, will constitute a day's work in hostling service.

(b) Time to be computed continuously from time required for duty until released from duty and responsibility at end of day or run. All over eight hours within any 24-hour period to be computed and paid for at the rate of time and one-half time.

(c) All overtime to be computed on the minute basis.

Article 4. Any rates of pay including mileage or arbitrary differentials that are higher, or any rules or conditions of employment contained in individual schedules in effect January 1, 1916, that are more favorable to the employees, shall not be modified or affected by any settlement reached in connection with these proposals. The general committee representing the employees on each railroad will determine which is preferable and advise the officers of their company. Nothing in the settlement that may be reached on the above submitted articles is to be construed to deprive the employees on any railroad from retaining their present rules and accepting any rates that may be agreed upon or retaining their present rates and accepting any rules that may be agreed upon.

General Managers' Association Urges Co-operation to Prevent Car Shortage

The General Managers' Association of Chicago has issued a circular, signed by J. W. Higgins, chairman, to shippers and receivers of freight, industrial traffic managers and commercial organizations, urging co-operation to prevent a car shortage. The circular says in part: "In 1912, and again in 1914, this association appealed for co-operation in obtaining the maximum use of freight cars. The results in both instances were gratifying. Reports that are coming from all parts of the country,

and present known conditons, call for a similar appeal at this time.

"In a recent circular on this subject the Interstate Commerce Commission urged shippers to co-operate to secure the prompt and full loading of cars and their prompt release.

Shippers were called upon to release cars at the earliest possible moment without regard to the free time given by the tariffs.

"To this end the following suggestions are made, for which the widest publicity is solicited: Load and unload all cars as quickly as possible; load all cars to the full capacity; anticipate the disposition of freight before its arrival, only order such cars as can be loaded promptly, do not order special type of car when ordinary type will answer the purpose, reduce to the minimum the practice of billing cars to intermediate points to be held for reconsignment.

"The latest government reports show great increases in all crops (the government crop reports indicate approximately 913 million bushels more grain raised in 1915 than in 1914, and 10 million tons more of hay), which fact, taken in connection with the increased tonnage from steel and munition plants, together with the well known inadequacy of ocean transportation, emphasizes the most urgent need of co-operation on the part of all if a serious car shortage and its accompanying effect on all lines of trade is to be avoided.

"On account of excessive rain and other adverse conditions which delayed the threshing of wheat and oats the movement of grain for the first crop months of 1915 (July, August, September, October) is 25 per cent less than the movement during the same months of 1914 at the terminals of Chicago, St. Louis, Omaha, Peoria and Milwaukee; and as the government reports indicate an increase in the amount of wheat and oats raised in 1915 of over 450 million bushels in excess of 1914, it is evident that there is an enormous amount of wheat and oats left in the country awaiting transportation.

"It is estimated on the best authority that there are 96,000,000 bushels of the 1914 corn crop on the farms, an increase of 16 million bushels compared with the same month a year ago, and the time is at hand for the movement of the 1915 corn crop, which is next to the largest in the history of the country. The increase of 913,081,000 bushels of grain, if loaded in cars at 1,350 bushels to the car, would make 676,356 more carloads than in 1914.

A compilation of records of cars available for use comparing the present with 1907 shows an increase in the number of available cars in the western territory, as well as in the whole country; and taking into consideration the increase in the average capacity of all freight cars, the improvement is substantial."

Railway Business Association

President Wilson on Wednesday of this week made positive his acceptance of an invitation to be the only speaker at the dinner of the Railway Business Association on January 27, at the Waldorf-Astoria Hotel, New York. International complications had up to that time prevented the announcement, and the association postponed its date from early in December to January in order to obtain its distinguished guest. The President in his recent annual message to congress recommended an inquiry into the whole question of railroad legislation and regulation. This was followed by a resolution, introduced by Senator Newlands, chairman of the committee on interstate commerce, providing for the appointment of a joint committee to investigate and report next December.

Dinner subscriptions have overrun the main dining room of the hotel, and tables will be set in the Astor gallery, with arrangement for diners at these tables to come in for the speaking.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, date of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, January, 1916, Atlanta, Ga.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York. Mid-year meeting, February 4, 1916, Congress Hotel, Chicago.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConnaughy, 165 Broadway, New York.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 21-23, 1916, Chicago.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 18-20, 1916, Chicago.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline,, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Annual session, May 17, 1916, Washington, D. C.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month. Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, C. & E. I., 922 McCormick Bldg., Chicago. Annual meeting, May, 1916, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn. Annual meeting, July, 1916.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Next meeting, August, 1916, Chicago.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Annual convention, May 23-26, 1916, Hotel Hollenden, Cleveland, Ohio.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 349 People's Gas Bldg., Chicago. Next convention, March 21-23, 1916, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York, Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILROAD MEN'S IMPROVEMENT SOCIETY.—J. B. Curran, Erie R. R., 50 Church St., New York. Meetings, alternate Thursdays, October to May, Assembly Rooms of Merchants' Association, Woolworth Bldg., New York.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, January 27, 1916, Waldorf-Astoria Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August. Monongahela House, Pittsburgh.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—Roy S. Bushy, Firemen's Bldg., Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, 559 Broad St., Newark.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings, bi-monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings, October to May.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Building, Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Grand Pacific Hotel, Chicago.

WESTERN SOCIETY OF ENGINEERS.—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1915

NAME OF ROAD.	Average mileage operated during period.	Operating revenues			Operating expenses							Net from Railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and Structures	Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Alabama & Vicksburg	143	$103,773	$33,021	$149,754	$16,371	$29,625	$3,387	$48,672	$2,334	$5,225	$105,614	$44,140	$10,350	$33,790	$36,828
Alabama Great Southern	309	375,711	88,123	497,210	41,640	121,717	11,821	136,483	3,004	8,088	322,516	174,694	15,745	158,932	87,499
Arizona Eastern	378	198,242	33,820	247,805	35,127	21,209	2,219	55,064	896	10,668	125,095	122,710	14,320	108,390	71,997
Atchison, Topeka & Santa Fe	8,627	6,904,463	2,297,888	10,030,739	1,249,383	1,373,944	207,744	2,541,419	.....	184,316	5,528,216	4,502,523	436,613	4,064,850	1,402,814
Atlanta & West Point	93	64,305	38,587	118,830	12,722	19,800	5,797	33,429	1,577	4,144	77,469	41,361	5,525	35,366	24,404
Atlanta, Birmingham & Atlantic	638	204,266	48,979	269,230	39,324	44,951	12,640	100,997	27	8,733	206,672	62,557	15,100	47,418	41,888
Atlantic & St. Lawrence	167	140,416	17,086	170,203	19,348	20,588	3,757	62,597	.....	3,875	110,165	60,038	11,505	48,533	41,255
Atlantic Coast Line	4,700	2,049,195	621,553	2,888,845	351,852	464,921	60,774	905,051	7,270	72,330	1,860,101	1,028,744	145,000	882,250	336,078
Baltimore & Ohio	4,535	7,433,647	1,130,723	9,233,682	1,112,718	1,934,865	153,523	3,016,430	53,880	212,437	6,483,843	2,749,839	283,081	2,465,689	1,159,891
Bangor & Aroostook	632	212,411	58,303	287,542	41,811	45,873	2,543	77,497	3,140	11,530	182,395	105,146	12,675	92,463	—11,655
Bessemer & Lake Erie	205	908,690	26,738	952,142	69,465	156,580	12,349	203,317	.....	12,500	446,556	505,585	16,782	488,800	330,231
Bingham & Garfield	27	165,821	3,040	169,729	14,564	16,570	977	22,580	78	1,952	56,721	113,008	5,054	107,945	62,421
Boston & Maine	2,302	2,693,953	1,152,068	4,210,042	618,291	490,258	30,537	1,718,649	13,457	112,139	2,983,330	1,226,711	164,352	1,062,359	394,685
Buffalo & Susquehanna R. R. Corporation	253	153,950	6,604	162,756	18,200	35,256	930	42,455	.....	6,161	103,003	59,753	2,600	57,153	35,696
Buffalo, Rochester & Pittsburgh	586	871,120	90,672	992,921	117,071	270,313	11,638	315,247	1,129	21,349	736,748	256,173	20,000	236,145	107,945
Central of Georgia	1,924	754,741	266,051	1,132,769	136,719	182,845	33,335	355,786	1,082	37,413	746,382	386,387	55,080	330,650	105,181
Central New England	304	457,128	34,450	510,452	38,218	31,989	1,028	125,727	.....	6,101	202,935	307,517	12,800	294,712	274,502
Charleston & Western Carolina	343	125,482	32,107	166,866	25,375	25,130	3,154	50,746	.....	4,554	108,959	57,907	5,000	52,900	24,408
Chesapeake & Ohio Lines	2,374	3,302,087	457,712	3,994,546	499,193	869,926	53,661	1,112,184	26,433	75,798	2,635,770	1,358,776	115,120	1,235,370	639,447
Chicago & Alton	1,052	988,703	297,652	1,389,752	165,819	286,393	35,159	465,558	10,255	31,123	980,490	409,262	44,758	364,250	199,566
Chicago & Northwestern	8,108	5,597,489	1,695,735	8,071,091	868,053	1,258,185	103,588	2,646,971	53,514	156,341	5,071,380	2,999,711	385,000	2,613,593	1,386,303
Chicago, Burlington & Quincy	9,366	6,955,593	1,665,178	9,409,594	814,383	1,192,657	119,730	2,556,057	59,900	167,687	4,910,413	4,499,181	367,181	4,132,000	1,425,569
Chicago, Indianapolis & Louisville	622	443,441	145,193	638,922	74,355	99,057	18,858	216,394	328	17,439	425,445	213,477	27,443	185,924	113,455
Chicago, Milwaukee & St. Paul	10,076	7,508,169	1,513,991	9,908,928	769,104	1,380,729	151,367	3,262,058	62,573	161,367	5,731,440	4,177,488	454,948	3,721,022	2,074,950
Chicago, Peoria & St. Louis	255	119,409	22,025	149,988	16,983	27,615	5,928	58,432	.....	5,212	114,170	35,818	4,800	31,018	23,211
Chicago, Rock Island & Gulf	477	248,310	51,297	323,188	41,347	35,344	9,872	91,522	2,012	7,905	188,002	135,185	8,295	126,848	58,574
Chicago, Rock Island & Pacific	7,663	4,454,642	1,416,869	6,336,346	947,031	1,056,611	129,385	2,216,002	38,998	184,905	4,568,829	1,767,518	297,503	1,469,500	414,272
Chicago, St. Paul, Minn., & Omaha	1,753	1,296,678	421,441	1,862,361	172,603	222,591	30,281	626,178	14,256	36,727	1,099,877	762,484	91,387	670,906	257,769
Chicago, Terre Haute & Southeastern	373	194,637	15,734	215,508	27,947	44,540	3,982	61,053	839	10,882	149,242	66,266	10,417	55,849	42,664
Cincinnati Northern	246	145,281	14,845	165,351	25,503	23,203	2,516	51,407	.....	2,620	105,249	60,101	5,500	54,601	16,593
Cleveland, Cincinnati, Chic. & St. Louis	2,381	2,584,215	684,255	3,561,167	378,945	640,017	77,168	1,184,463	22,845	75,776	2,368,999	1,192,167	124,000	1,066,249	652,127
Colorado Midland	338	124,631	9,587	145,481	16,318	32,083	7,005	58,117	727	5,942	120,193	25,288	10,000	15,288	—7,969
Cumberland Valley	164	213,127	52,812	280,720	29,748	30,131	3,984	84,992	824	9,887	159,566	121,155	5,794	115,358	86,887
Delaware & Hudson Co.—R. R. Dept	886	1,890,302	195,033	2,188,072	202,494	321,744	25,008	685,194	13,310	70,887	1,303,321	881,751	56,500	825,251	238,501
Delaware, Lackawanna & Western	959	3,482,452	665,197	4,543,150	354,197	568,047	82,183	1,318,303	28,616	78,074	2,425,629	2,117,521	170,000	1,947,407	605,024
Detroit & Mackinac	393	74,901	24,724	105,593	9,980	13,370	1,732	33,759	.....	2,599	61,440	45,153	8,162	36,991	—8,443
Detroit, Grand Haven & Milwaukee	191	209,000	56,400	309,628	24,647	33,433	5,130	136,273	589	4,278	204,350	105,278	3,770	101,182	64,371
Duluth, Missabe & Northern	400	679,946	27,438	773,768	85,599	109,982	1,847	153,849	20,556	10,529	382,333	391,405	48,748	342,657	416,552
El Paso & Southwestern Co	1,027	694,020	164,584	911,416	109,700	110,577	17,965	214,515	6,764	25,421	484,697	426,719	49,539	377,179	169,877
Elgin, Joliet & Eastern	773	1,066,380	21	1,131,115	59,317	177,819	6,420	293,049	.....	20,006	556,607	574,509	40,075	534,434	443,317
Ft. Worth & Denver City	454	446,696	141,010	615,857	59,871	77,758	6,090	169,459	2,524	15,909	331,612	284,245	19,733	264,512	68,695
Georgia, Southern & Florida	395	128,123	57,986	213,102	23,819	39,980	6,775	74,751	117	9,352	154,777	58,325	11,684	46,588	20,314
Grand Trunk Western	347	621,200	172,000	843,244	82,553	110,324	14,512	255,291	4,799	13,510	480,988	362,256	32,970	329,177	338,025
Gulf, Colorado & Santa Fe	1,938	1,149,466	273,354	1,500,782	230,567	192,024	29,257	956,785	.....	35,936	1,436,547	64,235	75,900	—11,921	—529,780
Indiana Harbor Belt	110	.....	.....	335,666	40,902	29,982	2,414	133,251	.....	7,950	214,499	121,167	7,600	113,531	48,621
International & Great Northern	1,159	649,018	166,528	874,386	148,152	121,573	19,554	330,573	3,842	28,925	635,758	238,627	35,000	203,448	—37,262
Kanawha & Michigan	177	273,953	31,647	312,844	47,037	54,445	2,978	75,967	3	6,352	186,782	126,062	14,000	112,062	70,800
Kansas City Southern	837	744,521	126,231	954,705	126,107	115,411	32,475	279,608	.....	34,911	577,103	377,603	46,541	330,552	53,071
Lake Erie & Western	900	496,194	54,093	579,262	73,340	92,177	11,925	189,539	.....	13,126	380,106	199,156	24,800	174,246	150,554
Lehigh & Hudson River	97	175,391	9,138	225,654	21,372	30,789	1,368	70,463	.....	4,063	128,055	97,599	5,000	92,599	52,612
Long Island	398	376,608	533,505	1,043,597	102,878	132,949	9,182	453,812	6,286	29,558	734,665	308,932	78,018	230,832	36,158
Louisiana & Arkansas	279	133,546	18,000	156,329	23,884	20,618	3,252	37,324	.....	3,978	89,056	67,273	7,500	59,773	28,836
Louisville & Nashville	5,038	3,899,065	869,906	5,110,346	751,441	893,271	141,298	1,458,801	26,037	95,755	3,363,242	1,747,104	190,090	1,556,577	891,419
Louisville, Henderson & St. Louis	200	96,190	32 862	136,530	24,795	17,260	5,127	42,006	.....	3,680	92,868	43,662	3,800	39,740	22,086
Maine Central	1,220	652,580	240,527	958,169	137,973	151,258	8,872	330,307	1,687	28,175	658,224	299,945	53,238	246,636	43,145
Michigan Central	1,785	2,184,412	752,629	3,351,511	398,104	571,682	62,099	1,194,413	47,335	69,163	2,342,797	1,008,715	150,000	858,516	552,580
Midland Valley	380	125,960	35,072	169,847	39,204	26,608	2,341	46,514	.....	5,994	120,661	49,186	7,550	41,597	4,073
Minneapolis & St. Louis	1,646	739,706	154,739	948,150	111,573	129,431	17,352	341,308	94	21,524	621,282	326,868	40,181	286,058	55,704
Missouri & North Arkansas	365	73,992	28,234	110,451	29,594	23,955	2,829	36,463	.....	5,742	98,583	11,868	5,754	5,932	20,451
Missouri, Kansas & Texas System	3,865	2,132,143	701,602	3,026,338	565,953	422,528	56,231	913,523	12,946	87,053	2,052,124	974,214	145,442	828,155	—161,697
Mobile & Ohio	1,122	888,753	99,188	1,044,164	107,528	235,348	32,271	342,267	2,227	29,178	748,819	295,344	28,386	266,726	43,982
Nashville, Chattanooga & St. Louis	1,231	844,401	205,877	1,135,359	112,421	202,825	51,200	380,392	11,938	34,970	793,357	342,003	26,000	315,531	199,239
Nevada Northern	165	134,899	10,055	148,845	17,311	12,575	749	27,397	21	4,873	62,927	85,918	6,400	79,518	67,287
New Orleans & North Eastern—Frt	196–														
—Pass	204–	237,119	45,796	310,634	35,496	55,420	9,480	98,618	5,853	10,949	215,816	94,818	14,000	80,818	46,056
New Orleans, Texas & Mexico	286	130,083	23,424	162,077	42,218	24,056	3,651	52,940	.....	9,355	132,220	29,857	1,521	28,320	—4,967
New York, Chicago & St. Louis	569	1,078,919	99,816	1,230,289	68,205	216,592	43,808	453,244	4,233	20,882	806,963	423,326	42,000	378,655	206,397
New York, New Haven & Hartford	2,005	3,278,693	2,429,676	6,407,273	731,954	870,415	35,235	2,268,692	71,867	141,331	4,119,197	2,288,077	240,000	2,047,317	889,603
New York, Ontario & Western	568	439,439	81,982	720,819	107,810	106,874	7,290	278,052	.....	17,429	517,454	203,395	20,983	182,402	50,975
New York, Philadelphia & Norfolk	112	304,532	33,446	361,919	32,159	68,566	4,393	137,706	4,146	11,671	258,641	103,278	12,500	90,778	62,116
Norfolk & Western	2,049	3,964,077	461,833	4,572,794	431,895	824,688	55,684	1,172,554	8,279	67,936	2,535,545	2,037,249	168,000	1,869,088	998,553
Northern Pacific	6,510	5,667,418	1,151,946	7,331,502	517,342	591,693	86,343	1,739,585	73,152	92,936	3,067,484	4,264,018	411,526	3,851,886	1,445,529

Traffic News

The Chicago & North Western has announced new club service in its dining cars, serving complete menus of short orders at lower prices than the regular a la carte prices.

The Union Pacific announces that during the season of 1915 all records were broken for the number of visitors to Yellowstone National Park, which reached a total of over 50,000, of which 32,000 persons entered the park through the Union Pacific System entrance at Yellowstone, Mont.

David T. Chindblom, assistant secretary of the National Industrial Traffic League, with office at Chicago, has been appointed manager of the traffic department of the Rochester (N. Y.) Chamber of Commerce. E. F. Lacey has been appointed to succeed him as assistant secretary of the league.

The Illinois Central announces that for the 60 years ending December 31, 1915, its suburban service in Chicago has been operated without the loss of a single life in a passenger train accident. The road now carries approximately 50,000 passengers daily, and runs 300 trains in and out of Chicago. For the calendar year 1915 the road carried 26,019,820 passengers without the loss of a single life in a passenger train accident anywhere on its system, and this is the third consecutive year that the company has had a clear record in this respect.

The Louisville & Nashville, which withdrew the privilege of reconsigning lumber in transit some time ago, has issued a circular, effective January 18, providing for reconsigning lumber in transit at a charge of $5 a car. The introduction of a charge for reconsignment is comparatively new in the Southeast, the Nashville, Chattanooga & St. Louis having recently put in a similar charge. Some of the shippers are objecting on the ground that the actual expense involved in reconsigning does not warrant so large a charge as $5 a car.

The Michigan Central has opened a new automobile terminal at Sixteenth street and Indiana avenue, Chicago, where 17 cars may be accommodated at one time. There are two end-door platforms, a covered platform 470 ft. long and a house 126 ft. by 40 ft., alongside of which cars can be set, the entire side of the house opening up for unloading purposes. This will accommodate 40 automobiles and the platforms a still larger number. The house and platforms are equipped with electric lights which are so arranged that lights can be taken into the cars and unloading done after dark.

The Louisville & Nashville on January 3 and 4 published a two-column advertisement in Louisville daily papers for the purpose of explaining the reasons for the freight rate changes which have just been made under the Interstate Commerce Commission's interpretation of the long and short haul law. The newspapers of Kentucky have been printing extended news stories of opposition on the part of local commercial bodies to the proposed rates. The statement pointed out that the revision is required, that most of the rates are not changed, and that there are as many reductions as there are increases.

Bernard A. Eckhart, president of the B. A. Eckhart Milling Company, of Chicago, and formerly a member of the Illinois Railroad Commission; the W. H. Merritt Company, grain dealers, and William H. Merritt, its president; Eugene L. Merritt, its secretary-treasurer, were indicted by the federal grand jury at Chicago on January 10, on charges of accepting from the Pittsburgh, Cincinnati, Chicago & St. Louis and the Pennsylvania, in 1913, rebates in the form of a refund of $2 a carload switching charges on shipments of flour, grain and milling products. The carriers were indicted some time ago and entered pleas of guilty. The indictments were returned on information filed by the Interstate Commerce Commission.

C. L. Chandler, South American agent for the Southern railway, has just returned from a 17,000-mile trip to the principal cities of Brazil, Uruguay, Argentina, Chile, Peru and Educador; and he says that an annual trade of $10,000,000 is awaiting the merchants and manufacturers of the South in South America if they will only go after it. "The countries of South America," says Mr. Chandler, "are rapidly regaining their financial stability and are looking to the United States to supply their wants. Europe is pouring money into South America, especially Argentina and Uruguay, for meat and other foodstuffs and this money is ready to be exchanged in the United States for manufactured goods and other products which are essential in the every-day life of the South Americans." He interviewed over 500 merchants and buyers and learned of more than 1,000 specific trade opportunities. He collected samples of cotton fabrics that are wanted in South America and secured trade directories and other valuable books.

The Long Island Railroad issues a statement showing that the number of new buildings erected on suburban Long Island (outside of Brooklyn and Long Island City) during 1915 was very near the high record mark. Altogether, 8,895 new buildings were put up, of which 7,276 were dwellings. These figures were only slightly exceeded in the years 1911 and 1912. The buildings heretofore erected are occupied, and the known preparations indicate more building during the coming year than ever before. Many new buildings are needed for employees of new industries established in Queens. Large numbers of employees of these establishments still live in Manhattan for the want of suitable houses on Long Island. In the last 10 years 71,660 new buildings have been erected. In the same period the number of passengers carried annually by the Long Island Railroad increased 135 per cent, reaching a total of 42,766,499 in 1915. The number of monthly commutation tickets sold last year was 226,391, an increase of 180 per cent in the 10 years.

Representatives of a number of Texas shippers held a conference in the office of the Dallas Chamber of Commerce last week and adopted resolutions denouncing the action of the Louisiana commercial interests who have filed a complaint with the Interstate Commerce Commission regarding the relative adjustment of freight rates from Shreveport, La., to Texas points, and the intrastate rates in Texas in the case now pending before the Interstate Commerce Commission. The resolution states that this complaint, if granted, would make the regulation of local freight rates in Texas dependent upon the rates to and from Shreveport, La., and that the development of the state industries and the protection of the interests of 4,000,000 people will depend on Shreveport. The resolutions then call upon all the patriotic citizens in the state "who believe it is our divine right to enjoy local self-government, to assemble in Austin on January 29, and acquaint themselves with all facts in this case," and to make an appeal to our governor that action may be taken by our state executive and legislature to maintain the integrity of the great state of Texas.

Car Surplus Again Increases

The American Railway Association Committee on Relations Between Railroads, Arthur Hale, chairman, has issued its monthly statistical statement, giving a summary of freight car surpluses and shortages for January 1, 1916, with comparisons, as follows:

Total Surplus January 1, 1916	68,700
December 1, 1915	60,793

Approximately one-half of the surplus reported for January 1 is in the Northwest and on the Pacific Coast, and consists of all classes of equipment. The remainder is distributed over the entire country, no large amount in any one section.

Total Shortage January 1, 1916	21,745
December 1, 1915	23,391

The shortage for December 1, 1915, shown above, includes figures reported since the issue of Statistical Statement No. 11. Canada shows a shortage of box cars of upwards of 9,000 cars, and group 6 (Northwest), reports a shortage of approximately 2,000. The coal car shortage is practically all in Eastern and Central Freight Association territories.

The figures by classes of cars follow:

Classes	Surplus	Shortage
Box	18,045	14,654
Flat	8,435	84
Coal and Gondola	19,360	4,654
Miscellaneous	22,860	2,353
Total	68,700	21,745

The figures for January 1, 1915, are not available.

Western Passenger Fares Go Up January 15

Western railroads on December 8 filed with the Interstate Commerce Commission their new tariffs of passenger fares as increased in accordance with the order of the Commission of December 11.

"It was a strenuous task to compile in so short a time these tariffs which change all interstate fares to and from every one of the thousands of stations throughout the territory west of a line drawn from Chicago to New Orleans," said Chairman MacLeod, of the Western Passenger Association. By special permission of the Interstate Commerce Commission the new rates will go into effect January 15 instead of 30 days after being filed, as is the general rule.

"The people of the United States have the best passenger service in the world and they will be satisfied with nothing less," continued Chairman MacLeod. "Eighteen months ago the Interstate Commerce Commission said, 'A public that demands such a service cannot reasonably object to the payment of a reasonable compensation therefor.' The interstate rate increases which the commission now fixes range from two-fifths to three-fifths of a cent a mile, being highest in the Southwest. Notwithstanding all the improvements which have been made in cars, locomotives, tracks, safety devices and terminals since the day when the first crude train crawled into Chicago, this is the first time the railroads have been permitted to make a general advance in passenger fares. Compared with the improvement in passenger service in the past 70 years, the rate increase now authorized seems anything but excessive.

"To prevent unwarranted discrimination in rates for interstate and intrastate trips, and to eliminate a chaotic rate condition, it remains for the various states which forced the railroads to a basis of two cents a mile to permit an advance corresponding to that just ordered by the Interstate Commerce Commission. The state railway commission of Kansas is the first to act in this matter, but it is believed that every state involved will do so, in simple justice to the railroads, as determined by the highest authority after most thorough investigation."

Freight Congestion at New York and Elsewhere

The Trunk Lines Committee at New York reports this week a diminution of about 3,000 cars in the amount of export package and piece freight waiting to be unloaded as compared with one week previous. Embargoes are quite generally continued though with some modifications.

The Baltimore & Ohio has extended its embargo to include all export freight. The New York Central now accepts export freight originating on its own lines, but the embargo still continues on various commodities, including automobiles, grain, flour, iron and steel articles. Detention of railroad lighters and barges alongside of ocean vessels continues annoying, being in many instances from twice to three times the time required for unloading under normal conditions.

The New York, New Haven & Hartford has issued a new embargo covering all carload and less than carload freight, originating west of the Hudson River destined to all points on or via the New York, New Haven & Hartford and the Central New England except livestock, perishables, foodstuffs for human consumption, feed for livestock, coal, coke and petroleum products in tank cars.

The Canadian Pacific announced at Winnipeg January 8, that no grain could be accepted for Fort William or Port Arthur for one week.

The Panama Railroad gave notice at New York that no freight could be accepted for west coast ports of Mexico, Central America and South America.

A resolution has been introduced in the Senate at Washington calling for an investigation of the freight embargo and congestion at Atlantic ports. It is said that the proposer of the resolution desires in this way to secure favorable consideration of the project, which has been pending for more than a year, to embark the government in the shipping business.

RAILWAY WORKS IN BRAZIL.—A decree has recently been issued conceding to Dr. José Agostinho dos Reis permission to construct and operate a railway from Cuyaba, the capital of the State of Matto Grosso, to Santarém, in the State of Para, by way of the tableland between the rivers Xingu and Tapajoz. The concession is for 60 years, counting from January 1, 1919.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has ordered an investigation concerning the rates on, and conditions relating to the shipping of, milk and cream between various points in New England on the Boston & Maine and the New York, New Haven & Hartford.

The commission has issued a fourth section order allowing carriers "to establish class and commodity rates from Cincinnati, Louisville, New Albany, Ind., and Jeffersonville, Ind., and from these points when from points north thereof to Gulf ports for export to Europe, Asia and Africa, to shipside, the same as in effect to New York, observing the domestic rates to New Orleans as maxima; and from Cincinnati, Louisville, New Albany and Jeffersonville when from points north of the Ohio river, including Detroit, Toledo and points with the same rates, but excluding all other points of origin."

The commission has refused to approve new freight tariff filed by the Trunk Lines making general advances of about 5 per cent in rates from Eastern points to Cleveland, Detroit and Chicago by rail and lake. The carriers believed these advances justified on the same grounds as the similar increases in all rail rates, which have not been disapproved; but the Commission declares itself unconvinced that these proposed rates should be permitted to become effective in order to restore the former relation. On the contrary it "is convinced that the maintenance of the present greater differentials will give to the lake routes an opportunity of growth which seems to have been denied them heretofore."

Rates via Rail-and-Lake Routes

Opinion by Commissioner McChord:

It is found that proposed increased class and commodity rates via the so-called lake routes to and from trunk line and New England territory, from and to points, generally speaking, west of the Illinois-Indiana state line, published in tariffs suspended until January 25, 1916, have not been justified. The routes involved include a boat haul on the great lakes performed by one of the several lake lines, including: Canada-Atlantic Transit Company, Cleveland & Buffalo Transit Company, Detroit & Cleveland Navigation Company, Erie Railroad Lake Line, Lackawanna Transportation Line, Lehigh Valley Transportation Company, Mutual Transit Company, Port Huron & Duluth Steamship Company, Rutland Transit Company, Erie & Western Transportation Company, and the Western Transit Company. Most of these lines are now owned and controlled by rail carriers.

The principal reason for increasing the rates is to maintain the differential under the all-rail rates which was changed when the latter were increased in accordance with *The Five Per Cent Case.* The respondents base their argument on the need of greater revenue, and in general bring up the same issues as were involved in the previous case.

The commission based its findings on the fact that during the years of dominating control of the lake routes by the rail carriers there have been: (1) an upward tendency in the package rates via the lakes; (2) a domination of divisional arrangements by the controlling rail interest; (3) a narrowing of the differentials in lake rates under all rail; (4) a rate parity with ocean-and-rail routes; (5) a falling off in high-class tonnage over the lakes; and (6) an aggregate tonnage movement which shows no progressive growth. It says in its decision, "The commission is unconvinced that these proposed rates should be permitted to become effective in order to restore the former relation. On the contrary, it is convinced that the maintenance of the present greater differentials will give to the lake routes an opportunity of growth which seems to have been denied them heretofore. Surely, if the absorptions, of which this record on behalf of the respondents is full, are necessary to and do retain tonnage at the various ports, it must be that the greater differentials will attract tonnage at such ports and beyond." (*37 I. C. C., 302.*)

STATE COMMISSIONS

As the result of a motion for a rehearing filed by the railroads of the state, the Missouri Public Service Commission has suspended the new freight and passenger rates prescribed in its order of November 10 until March 1.

Representatives of the Kansas railroads presented arguments before the Kansas Public Utilities Commission at a hearing at Topeka on January 4, on the application of the Kansas railroads for permission to increase their intrastate passenger fares from two cents to three cents a mile. The hearing was adjourned until February 29.

The Public Service Commission of Alabama has granted the petition of the Central of Georgia, the Seaboard Air Line, the Atlanta, Birmingham & Atlantic and the Western of Alabama for authority to continue in force, until June 30 next, the freight rates, known as the "ten per cent increases," on certain commodities, which for several weeks have been under discussion with a view to a restoration of the former lower rates.

PERSONNEL OF COMMISSIONS

C. P. Rawson office engineer of the Chicago, Milwaukee & St. Paul, has been appointed senior architect, division of valuation, Interstate Commerce Commission, at Chicago.

W. W. Mason, formerly in the appraisal department of the New York Public Service Commission, has been appointed senior electrical engineer, division valuation, with headquarters at Chicago.

COURT NEWS

Stipulation for Notice of Claim

The Oklahoma Supreme Court holds that the provision of the state constitution restricting provisions in contracts stipulating for notice or demand before establishing a claim only apply to intrastate commerce, the Carmack amendment having terminated the state's authority to pass acts relative to contracts made by railroads regarding interstate commerce.—St. Louis & S. F. (Okla.), 152 Pac., 848.

Car Repair Yard Accident

A car repairer sued for injury to his foot while repairing a car, by stepping on a bolt lying on the ground between the tracks. The Kansas City Court of Appeals held that a railroad, though bound to remove debris from such a place, is not bound to remove new materials placed there by the car repairers; and the plaintiff could not recover where it was a mere matter of conjecture whether he turned his foot on an old bolt or a new one.—Hall v. M. P. (Mo.) 180 S. W. 426.

Damages for Death of Locomotive Engineer

In an action for the death of a locomotive engineer, killed when his engine was derailed at a misplaced switch, the company was held liable, and the jury awarded his widow, aged 52, a verdict of $11,150. The deceased was an experienced engineer, earning $175 a month, which he turned over to his wife. He was a man in good health, with an expectancy of life of 13½ years. The Iowa Supreme Court held that the verdict was not so extravagant as to clearly indicate passion or prejudice on the part of the jury, and therefore would not be disturbed.—Basham v. C. G. W. (Iowa) 154 N. W. 1019.

Unloading Improperly Loaded Freight

A station agent invited the employee of a consignee to enter a freight car to unload a number of bundles of doors. The bundles were standing exactly on end. They had been kept in position during the movement of the car by other freight piled against them. This had been removed. The employee picked up a bundle of doors, and, finding it too heavy, put it back in perfectly perpendicular position, while he waited for aid. All the doors fell on him, killing him instantly. In an action against the railroad the Kentucky Court of Appeals held that the deceased was not guilty of contributory negligence as a matter of law, precluding recovery, since his act of replacing the doors was not solely responsible for his death, as the dangerous condition was caused by the first unsafe stacking of the doors. The railroad's liability was a question for the jury, which found for the plaintiff.—L. & N. (Ky.) 180 S. W. 353.

Overcharges—State Statute Hold Void

The North Carolina statute of 1905, providing that any carrier failing to refund overcharges on freight shall forfeit $25 for the first day and $5 for each day of delay, not to exceed $100, has been held by the North Carolina Supreme Court, in an action to recover overcharges, with a penalty for failure to refund, to be void, as conflicting with the commerce clause of the Federal Constitution, when applied to interstate commerce, of which subject Congress has taken exclusive control.—Blalock Hardware Co. v. S. A. L. (N. C.) 86 S. E. 1025.

Liability as to Trespasser on Engine

By the Wisconsin and the federal statutes it is made unlawful to ride free or to permit one to ride free. It is, besides, a matter of common knowledge that trainmen have no right to permit anybody to ride free, particularly on the engine. The Wisconsin Supreme Court holds, therefore, that one who enters the cab of a locomotive for a free ride, without objection by the engineer, is presumed to know that the engineer has neither actual nor apparent authority to permit him to do so, and thereby makes himself a trespasser. Such a trespasser was killed by an explosion. No recovery could be had for his death in the absence of "willful negligence;" that is, some fault greater than want of ordinary care on the part of the engineer.—Spencer v. Chicago, M. & St. P. (Wis.), 154 N. W., 979.

Duty to Test Hand Cars After Purchase

In an action by a section foreman against a railroad for injuries received by being thrown from a defective hand car, it appeared that the cogs of the car became interlocked from being geared too tight or too deep, causing the car to jump off the track, and injuring the plaintiff. The Texas Court of Civil Appeals held that, under its duty of furnishing safe appliances, a railroad company, before turning over to its employee for use a new hand car, bought from a reputable manufacturer, was bound to inspect the car to ascertain its condition, and could not rely on the supposition that the manufacturer had made such inspection. The duty of the master to inspect appliances other than simple tools, is to make some test which would satisfy a prudent person that the machine is safe for use.—St. Louis Southwestern of Texas (Tex.) 180 S. W. 300.

Foreign Railroad Company "Doing Business Within State"

It would, the Texas Court of Civil Appeals says, in an action for personal injuries in which the jurisdiction of the state court was in question, be a very difficult matter to formulate a definition of what constitutes doing business in a state by a foreign railroad corporation applicable in all instances, and the question is best determined upon the facts arising in each particular case. In the present instance the company's general manager and its managing officers and agents resided in El Paso county, maintained their offices there, and the business transacted there was most important, executive and departmental in its nature. It was held that this constituted doing business by the company in Texas, and jurisdiction of the state court was conferred by service on the general manager.—El Paso & S. W. v. Chisholm (Tex.), 180 S. W., 156.

Riding Under Low Railroad Bridge—Contributory Negligence

After two trials, in the latter of which the plaintiff recovered a verdict and judgment for $2,500 for personal injuries sustained when, while riding under a railroad bridge, his head struck the timber of the bridge (145 S. W., 1195), the Supreme Court of Texas has reversed that decision and rendered judgment for the railroad. It considered the case a plain one of injury directly caused by the plaintiff's own negligence. It was unbelievable that a man of six feet, as he was, upon a horse of ordinary size, proceeding slowly in a walk, with nothing to distract his attention, could, in the open day, ride up against or into so conspicuous an object as a railroad bridge, directly in front of him across the road and only six feet above the ground, so as to cause injury to himself, and be in the exercise of ordinary care.—Marshall & E. T. v. Petty (Tex.), 180 S. W., 105.

Railway Officers

Executive, Financial, Legal and Accounting

F. G. Nicholson has been appointed assistant to the receiver of the Chicago & Eastern Illinois, with office at Chicago, Ill.

E. T. Lamb, who was receiver and general manager of the Atlanta, Birmingham & Atlantic Railroad, is now president of the Atlanta, Birmingham & Atlantic Railway, which took over the ownership of the road on January 1.

J. B. McLaren, auditor of freight accounts, of the Grand Trunk at Montreal, Que., has been appointed auditor of revenues in charge of freight and passenger accounts, and the titles of auditor of freight accounts and of auditor of passenger accounts have been abolished.

E. Ford has been elected president of the Arkansas & Louisiana Midland, which recently purchased the Arkansas, Louisiana & Gulf and leased the Ashley, Drew & Northern. William A. Otis has been elected vice-president; Alfred Cowles, secretary and treasurer, and J. H. Schaefer, assistant secretary and treasurer. C. V. Allain has been appointed auditor and J. C. Theus, general counsel. General offices, Crossett, Ark.

Herbert R. Wheeler, who has been in the treasury department of the Boston & Maine for the past 33 years, has been elected treasurer with office at Boston, Mass. He succeeds Herbert E. Fisher, who has asked that he be relieved of his duties on February 1. Mr. Fisher has been in the service of this road for over 46 years and will continue to act as assistant treasurer of certain of the subsidiary lines.

Woodward Hudson, who has been appointed vice-president and general counsel of the Boston & Maine, with headquarters at Boston, Mass., as has already been announced in these columns, was born on January 25, 1858, in New York City. After leaving public school he graduated from Harvard College in 1879 and Harvard Law School in 1882. On October 1, 1887, he entered the service of the Boston & Albany as first assistant to Samuel Hoar, counsel of that road. He served as assistant counsel until 1904 when he became counsel of the same road at Boston, Mass., and now becomes vice-president and general counsel of the Boston & Maine, as noted above.

C. J. Chenworth, whose appointment as assistant to third vice-president of the Atlantic Coast Line with headquarters at Wilmington, N. C., has already been announced in these columns, was born on September 15, 1878, at Dublin, Md., and was educated in the public schools of Maryland, Baltimore City College, and Mt. St. Mary's College. In April, 1900, he began railroad work with the Baltimore & Ohio, and was almost continuously in the service of that road until June, 1905. He then served for about eight years as assistant engineer on the Atlantic Coast Line. In February, 1914, he was appointed engineer of roadway which position he held at the time of his recent appointment as assistant to third vice-president of the same road, as above noted.

Operating

W. W. Bates has been appointed inspector of transportation of the Delaware & Hudson with office at Albany, N. Y., vice W. L. Schneider.

D. R. Campbell has been appointed assistant general manager of the Pacific division of the Canadian Northern, lines west of Tollerton, Alta. Office at Vancouver, B. C.

A. H. Mansfield, chief despatcher of the Canadian Pacific at Brandon, Man., has been appointed chief despatcher, district 1, Central division, Canadian Northern, vice T. J. Brown, promoted.

W. T. Sadler, assistant division superintendent of the Chicago, Burlington & Quincy at La Crosse, Wis., has been appointed division superintendent with office at Casper, Wyo., vice M. J. Foley transferred.

J. Paul Stevens, general superintendent of the Chesapeake & Ohio at Huntington, W. Va., and W. R. Hudson, general superintendent at Covington, Ky., have arranged, for personal reasons, to exchange positions.

C. M. Williams, chief despatcher Toledo division, New York Central, has been appointed trainmaster with headquarters at Toledo, Ohio. M. P. Smilie has been appointed chief despatcher to succeed Mr. Williams.

F. C. Dow, trainmaster of the Chicago, Milwaukee & St. Paul, at Miles City, Mont., has been appointed trainmaster of the Rocky Mountain division, with office at Three Forks, Mont., in charge of electrification work.

V. A. Riton, general superintendent of the Eastern general division of the Norfolk & Western, at Roanoke, Va., has been granted leave of absence on account of illness, and J. T. Carey, division superintendent, at Portsmouth, Ohio, has been appointed acting general superintendent of the Eastern general division with office at Roanoke.

F. R. Rockwell, general superintendent of the Colorado lines of the Denver & Rio Grande at Denver, Colo., has been appointed assistant general manager of the Utah lines, with headquarters at Salt Lake City, Utah, vice A. B. Apperson, resigned. The offices of general superintendents of the Colorado and Utah lines have been abolished.

E. F. Hayes has been appointed superintendent of terminals and trainmaster of the Cleveland, Cincinnati, Chicago & St. Louis with headquarters at Cleveland, Ohio, succeeding P. T. White, promoted. H. Goodwin has been appointed trainmaster on the St. Louis division, west, with headquarters at Mattoon, Ill., succeeding E. F. Hayes, promoted.

E. C. Bagwell, president's assistant on the Seaboard Air Line at Norfolk, Va., has been appointed general manager of the Raleigh & Charleston and the Chesterfield & Lancaster. He succeeds H. W. Stanley, who was general manager of the Raleigh & Charleston and vice-president of the Chesterfield & Lancaster, the latter office has been abolished.

E. B. Cushing, engineer of construction for the Sunset-Central Lines, has been appointed assistant general manager, with office at Houston, Tex. R. M. Hoover, division superintendent of the Galveston, Harrisburg & San Antonio at El Paso, Tex., has been appointed inspector of transportation, with office at Houston. L. S. Bourne, assistant division superintendent of the Houston & Texas Central at Austin, Tex., has been appointed superintendent at El Paso, vice Mr. Hoover. R. J. Barry has been appointed assistant division superintendent at Austin, Tex., vice Mr. Bourne.

R. R. Jelly, chief despatcher, district 4, Manitoba division of the Canadian Pacific, with office at Souris, Man., has been appointed chief despatcher, district 3, with office at Brandon, Man., vice A. H. Mansfield, resigned, to enter the service of the Canadian Northern. R. F. Chapman, chief despatcher, district 1, Saskatchewan division, with office at Regina, Sask., has been appointed chief despatcher, district 4, Manitoba division, vice R. R. Jelly. G. Hillier, despatcher at Regina, Sask., has been appointed chief despatcher, district 1, Saskatchewan division, vice R. F. Chapman.

Joseph W. James, whose appointment as assistant to general manager of the Buffalo, Rochester & Pittsburgh at Rochester, N. Y., has already been announced in these columns, was born in 1877, at Coopers, Steuben county, N. Y. He began railway work as a water boy with a steam shovel gang on the Erie Railroad at the age of twelve, and then served first as telegraph operator on the same road, and later as operator on the Buffalo, Rochester & Pittsburgh until his promotion to the train despatcher's office. He later served for several years in various positions, including those of operator, agent, despatcher, chief despatcher, trainmaster and general yardmaster on different roads. He returned to the service of the Buffalo, Rochester & Pittsburgh in 1911, as train despatcher and a few months later was appointed special representative to the general manager, which position he held at the time of his recent appointment as assistant to general manager of the same road.

E. M. Costin, whose appointment as general superintendent of the Cleveland, Cincinnati, Chicago & St. Louis has been announced, was born on September 14, 1873, at Bellefontaine, Ohio. He received a common school education and entered railway service in February, 1888, as a telegraph operator for

the Cincinnati, Wabash & Michigan. In 1889 he held a similar position with the Baltimore & Ohio, and in 1890 entered the employ of the New York, Chicago & St. Louis in the same capacity. From 1891 to 1892 he was telegraph operator for the Cleveland, Cincinnati, Chicago & St. Louis; from 1892 to 1893 he was car distributor for the same company; from 1893 to 1895 he was train despatcher; from 1895 to 1899, chief train despatcher; from 1899 to 1902, trainmaster of the Peoria & Eastern; from 1902 to 1907, trainmaster of the St. Louis division of the Big Four; from 1907 to July, 1913, superintendent of the Cleveland-Indianapolis division, with office at Cleveland, Ohio; from 1913 to January 1, 1915, assistant general superintendent, with office at Indianapolis, Ind. In his capacity as general superintendent he will continue to have headquarters at Indianapolis.

Joseph W. Foote, whose appointment as superintendent of the Delaware division of the Erie, with office at Susquehanna, Pa., has already been announced in these columns, was born on April 11, 1882, at Archbald, Pa., and was educated at St. Thomas College, Scranton. He began railway work on December 3, 1901, on the Erie Railroad, and served as acting assistant engineer on the Wyoming division until February, 1906, when he became assistant engineer on the New York division. He was then appointed chief clerk to division engineer on the same road, and in April, 1908, became supervisor of the New York, Susquehanna & Western at Blairstown, N. J. On June 1, 1908, he was appointed assistant supervisor of the Terminal division of the Erie at Jersey City, N. J., becoming supervisor of the same division in April of the following year. On January 1, 1910, he was appointed division engineer of the New York, Susquehanna & Western at Jersey City and in November, 1912, he was appointed division engineer of the Allegheny division of the Erie at Salamanca, N. Y. In October, 1914, he was appointed trainmaster of the Delaware division at Susquehanna, Pa., which position he held at the time of his recent appointment as superintendent of the same division as above noted.

Howard C. Woodbridge, who has been appointed assistant to general manager of the Buffalo, Rochester & Pittsburgh with headquarters at Rochester, N. Y., as has already been announced in these columns, was born in 1874, at Chatham, N. Y. He began railroad work firing a locomotive on the Rutland Railroad, and later entered the machine shops of the same road. He took a course in mechanical engineering at Cornell University and was graduated in the class of 1897. He then entered the service of the Minneapolis & St. Louis as a machinist and later became general foreman at the Albert Lea, Minn., shops. He later served as general foreman of the Delaware, Lackawanna & Western shops at Elmira, N. Y., and then as an inspector and traveling engineer of the American Locomotive Company for two years. On November 22, 1905, he was appointed master mechanic of the Salamanca shops of the Buffalo, Rochester & Pittsburgh and two years later was placed on the general manager's staff engaged in special work in connection with the development of mechanical matters. On January 1, he was appointed assistant to general manager and will give his attention to details in connection with the mechanical department of that road.

Traffic

A. B. Ayers has been appointed general agent for the Denver & Rio Grande, with office at Minneapolis, Minn.

Thomas B. McGill has been appointed commercial agent of the Union Pacific System, with headquarters at Chicago, Ill.

John J. O'Hare has been appointed district passenger agent of the Wabash, with office at Cincinnati, Ohio, vice E. Swift, retired.

John W. Blount, district passenger agent of the Central of Georgia, has been appointed division passenger agent, with headquarters at Macon, Ga.

The office of Harry Billings, eastern superintendent of the Star Union Line, will be transferred on January 15, from Philadelphia, Pa., to New York.

L. C. Rains has been appointed commercial agent of the Chicago, Indianapolis & Louisville with office at Minneapolis, Minn., vice H. L. Moore, deceased.

R. M. Milliken, city freight agent of the Canadian Northern at Winnipeg, Man., has been appointed district freight agent at Brandon, Man., vice R. B. McIntosh.

L. R. Hart, chief clerk in the passenger department of the Canadian Pacific at New York, has been appointed general agent of the passenger department at Buffalo.

Robert F. Kelley, general freight and passenger agent of the Wheeling & Lake Erie, has been promoted to general traffic agent, a newly created position, with headquarters at Cleveland, Ohio.

Bernard Ashby, district passenger agent of the Baltimore & Ohio at Philadelphia, Pa., has been appointed special representative of the passenger department, with headquarters at Baltimore, Md.

J. E. Shipley, assistant general passenger agent of the Tennessee Central at Nashville, Tenn., has been appointed general passenger agent with office at Nashville, and his former position has been abolished.

Charles T. Sherman, assistant general freight and passenger agent of the Boyne City, Gaylord & Alpena, has been promoted to general freight and passenger agent. His office will continue to be at Boyne City, Mich.

R. S. Willock, general agent of the Louisville & Nashville at Nashville, Tenn., has been appointed division freight agent at Memphis, vice S. H. Stout, resigned; L. G. Waldrop, general agent at Anniston, Ala., succeeds Mr. Willock; T. P. Washburn, traveling freight agent at Augusta, Ga., has been appointed general agent at Anniston, Ala., vice Mr. Waldrop, and H. T. Drane, traveling freight agent at Macon, has been appointed commercial agent at Selma, Ala., vice R. C. Gucker, resigned.

Chester E. Clapp, agent of the Ft. Wayne Route, Star Union Line, has been appointed western superintendent, Star Union Line, with office at Chicago, Ill. Henry C. Wilson has been appointed agent of the Ft. Wayne Route, with office at Chicago, vice C. E. Clapp, promoted. Louis W. Blessig has been appointed agent, Star Union Line, at Minneapolis, Minn., vice Mr. Wilson, promoted. Norbert F. Kenney has been appointed agent at Omaha, Neb., in place of Louis W. Blessig, promoted. Edwin Linthicum has been appointed agent at Spokane, Wash., in place of Mr. Kenney, promoted.

William Arthur Jackson has been appointed general agent in charge of freight and passenger traffic for the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Duluth, Minn., vice W. G. Brown, resigned, to engage in other business. Oscar C. Scherer has been appointed general agent with headquarters at Sioux City, Iowa, in charge of freight and passenger traffic, vice Logan A. Mizener, promoted. George L. Wallace has been appointed general agent with headquarters at Eau Claire, Wis., in charge of freight traffic.

L. B. Jay has been appointed assistant general passenger agent of the Cincinnati, Indianapolis & Western, with office at Indianapolis, Ind. A. M. Waldo has been appointed division freight agent, and P. M. Havens, commercial agent, with headquarters at Indianapolis. Frank E. Emery has been appointed commercial agent with office at St. Louis, Mo. F. N. Hodgin has been appointed general agent at Hamilton, Ohio, and D. C. Odell, general agent at Springfield, Ill. E. A. Doyle has been appointed commercial agent at Cincinnati, Ohio.

J. H. R. Parsons, whose appointment as general passenger agent of the Southern Pacific lines in Texas has been announced in these columns, entered railway service on January 1, 1880, in the treasurer's office of the Grank Trunk at Pt. Huron, Mich. On April 1, 1886, he went to Omaha, Neb., where he was employed in the passenger department of the Union Pacific. He remained at Omaha until January 1, 1906, when he was transferred to Chicago. On January 1, 1909, he went to New Orleans to become general passenger agent of the Southern Pacific lines in Louisiana. He continued in this position until his recent promotion to general passenger agent of the Texas lines, with office at Houston.

Benjamin H. Dally, who has been appointed assistant general freight agent of the Vandalia, was born on January 7, 1865, at Milwaukee, Wis. He attended the public schools and Spencerian Business College in the same city. On September 1, 1882, he entered the office of the Star Union Line at Milwaukee, in a clerical capacity. On January 1, 1884, he was appointed foreign bill clerk and continued in that position until September, 1886, when he was promoted to chief clerk. From May 1, 1891, to January

1, 1901, he was traveling agent, and from the latter date until April 1, 1908, he held the position of commercial agent. From April 1, 1908, to January 1, 1916, he was division freight agent of the Vandalia, with office at St. Louis, Mo. As assistant general freight agent, he will continue to have headquarters at St. Louis.

Horace E. Watts, whose appointment as general freight agent of the Wabash has been announced in these columns, was born at Mount Airy, Mo., on July 23, 1868. He was educated in the public schools and at Central College, Fayette, Mo. His first railroad position was that of operator for the Chicago & Alton at Glasgow, Mo., from July to August, 1888. On the latter date he was transferred to Mexico, Mo., as operator and ticket agent. In July, 1891, he went to St. Louis, Mo., to become suburban ticket agent of the Wabash, where he remained until May, 1896. From June, 1896, to November, 1906, he was passenger and ticket agent of the Wabash at Moberly, Mo. He was division freight and passenger agent in the same city from November, 1906, to August, 1908, when he was promoted to assistant general freight agent, with office at St. Louis, Mo. On December 6, 1915, he was appointed general freight agent of the same railroad, with headquarters in the same city.

H. E. Watts

Willjam L. Donaldson, whose appointment as assistant general freight agent of the Lehigh Valley, with office at Buffalo, N. Y., has already been announced in these columns, began railway work in 1898 and served in various capacities in the freight traffic departments of the Grand Trunk, the Wabash, and the Chicago & North Western. In 1906 he entered the service of the Lehigh Valley as soliciting freight agent at Sayre, Pa. He was subsequently appointed general traveling agent of the Lake Shore-Lehigh Valley and Michigan Central - Lehigh Valley Routes. Two years later he was promoted to commercial agent, with headquarters at Chicago, remaining in that position until these fast freight line soliciting organizations were abolished, when he was appointed westbound agent of the Lehigh Valley. Four years later he was transferred to New York as assistant to H. C. Hamilton, general freight agent, which position he held until his recent appointment as assistant general freight agent of the same road, as above noted.

W. L. Donaldson

George W. Davis, general freight agent of the Vandalia Railroad, who retired from active service under the rules of the pension department on January 1, was born on December 21, 1845, at Baltimore, Md., and entered railway service on March 1, 1864, as clerk in the general freight office of the Little Miami, at Cincinnati, Ohio. On April 1, 1866, he was promoted to chief clerk of the same office, a position that he held until February 1, 1869, when he became freight and ticket agent of the same road and the Cincinnati & Muskingum Valley, at Morrow, Ohio. He remained at Morrow until May 25, 1882, when he went to Dayton, Ohio, as freight agent of the Pittsburgh, Cincinnati & St. Louis. On July 15, 1885, he was appointed division freight agent of the Cincinnati & Muskingum Valley division of the Pittsburgh, Cincinnati & St. Louis, with office at Zanesville, Ohio. From January 1, 1886, to October 15, 1888, he was general freight and ticket agent of the Cincinnati & Muskingum Valley; from October 15, 1888, to May 1, 1897, he was division freight agent of the Richmond and Bradford divisions of the Pennsylvania Lines, at Richmond, Ind. His next position was that of division freight agent of the Cincinnati division and the south end of the Richmond division of the same lines, at Cincinnati, Ohio, where he remained until March 23, 1903, when he went to Columbus, Ohio, as general freight agent of the Cleveland, Akron & Columbus and commercial agent of the Pennsylvania Lines. On January 20, 1907, he was appointed general freight agent of the Vandalia, the position which he held up to the time of his retirement.

Chester E. Clapp, who has been appointed western superintendent of the Star Union Line, was born at Burlington, Iowa, on April 4, 1873. He attended the public schools in his native city and entered railway service on May 4, 1892, as a clerk for the Star Union Line at Burlington. On November 1, 1896, he was transferred to Quincy, Ill., as agent for the same line, where he remained until May 1, 1903, when he went to Kansas City, Mo., as agent for the Anchor Line. On December 16, 1905, he became agent for the Star Union Line in the same city, and on July 20, 1908, he came to Chicago, in the same capacity. He continued as agent for the line until January 1, 1916, when he was appointed western superintendent, with office at Chicago.

C. E. Clapp

Engineering and Rolling Stock

H. F. Staley, master mechanic of the Boyne City, Gaylord & Alpena, has been appointed superintendent of motive power and machinery, with office at Boyne City, Mich.

J. E. McIntyre, supervisor of the Pennsylvania Railroad at South Fork, Pa., has been appointed supervisor of division No. 6, with office at Mifflin, vice H. E. Waters, transferred.

G. J. Duffey, master mechanic of the Lake Erie & Western, at Lima, Ohio, has been appointed superintendent of motive power with headquarters at Lima, and the office of master mechanic has been abolished.

H. T. Simpson has been appointed assistant division engineer of the Pennsylvania Lines West, with office at Ft. Wayne, Ind., vice Harvey Hall, resigned. George U. Middleton has been appointed assistant division engineer, with office at Zanesville, Ohio, vice F. V. Berkey, transferred.

John P. Kendrick, master mechanic of the Buffalo, Rochester & Pittsburgh at Punxsutawney, Pa., has been promoted to master mechanic at Du Bois, Pa., shops, and James D. Searle, erecting foreman at Du Bois shops, has been appointed master mechanic of the Middle and Pittsburgh divisions, with office at Punxsutawney, succeeding Mr. Kendrick.

G. H. Nowell, locomotive foreman of the Canadian Pacific at Cranbrook, B. C., has been appointed district master mechanic at Nelson, B. C. G. Moth, district master mechanic at Revelstoke, B. C., has been appointed district master mechanic at Cranbrook, B. C., vice L. Fisher, transferred. L. Fisher has

been appointed district master mechanic at Revelstoke, vice G. Moth.

Kenneth B. Duncan, whose appointment as valuation engineer of the Atchison, Topeka & Santa Fe, eastern lines, has been announced, was born at Princeton, Ind., on September 5, 1878. He was graduated from Purdue University in June, 1902. From that time until February, 1903, he was engaged in drainage investigation work for the U. S. Department of Agriculture, at Fresno, Cal. His next position was that of draftsman for the Gulf, Colorado & Santa Fe, at Galveston, Tex. In July, 1904, he went to Lafayette, Ind., to become an instructor in civil engineering at Purdue University, where he remained a year. For three years he was employed by the Houston & Texas Central successively as topographer on location, resident engineer and division engineer of construction. In June, 1908, he returned to Galveston, and for three years was assistant to the chief engineer of the Gulf, Colorado & Santa Fe. In June, 1911, he entered the service of the Atchison, Topeka & Santa Fe as office engineer at Topeka, Kan., and on May 1, 1913, was appointed engineer of the Gulf lines of the Gulf, Colorado & Santa Fe, with office at Galveston, Tex. Mr. Duncan remained in that position up to the time of his appointment as valuation engineer of eastern lines on December 1.

K. B. Duncan

John Wintersteen has been appointed general master mechanic of the Lehigh Valley with headquarters at South Bethlehem, Pa. He will perform such duties as may be assigned to him by the superintendent of motive power. Mr. Wintersteen was born in 1875, and began his mechanical experience as a boilermaker at the Lansford shops of the Lehigh Coal & Navigation Company. In 1898 he entered the service of the United States government at League Island, Philadelphia, Pa. and later served at Key West, Fla. He subsequently was in the service of the Baldwin Locomotive Works, then was boiler inspector on the Norfolk & Western at Roanoke, Va., and later served as general foreman in the Richmond shops of the Philadelphia & Reading Railway.

J. Wintersteen

J. S. Browne, assistant engineer of the New York, New Haven & Hartford at New Haven, Conn., has been appointed assistant to the engineer, maintenance of way, with office duties as assigned, at New Haven. C. D. Perkins, division engineer of the New York division, at Harlem River, N. Y., has been appointed assistant to the engineer, maintenance of way, with field duties as assigned and office at New Haven. Paul Sterling, division engineer of the Western division, at Waterbury, Conn., succeeds Mr. Perkins, promoted; H. E. Astley, division engineer of the Midland division, at Hartford, Conn., succeeds Mr. Sterling, G. F. Yardley, division engineer of the Central New England, has been appointed division engineer of the Midland division of the New Haven, with office at Hartford, vice Mr. Astley, and J. S. Ruff, supervisor at South Braintree, Mass., has been appointed division engineer of the Central New England, with office at Poughkeepsie, N. Y., vice Mr. Yardley.

Purchasing

J. D. Ferguson has been appointed general purchasing agent of the Zwolle & Eastern, with office at St. Louis, Mo.

George H. Grone, assistant purchasing agent of the Pennsylvania Railroad, at Philadelphia, Pa., has resigned to go into other business.

E. Humphrys, fuel agent of the Canadian Pacific, has been appointed storekeeper of the Manitoba division, with office at Winnipeg, Man. The duties of fuel agent have been incorporated with those of the new position.

George W. Caye, whose appointment as general purchasing agent of the Grand Trunk, with office at Montreal, Que., has already been announced in these columns, was born on December 1, 1865, at Malone, N. Y. In August, 1883, he entered the service of the Central Vermont as junior clerk in the passenger department at St. Albans, Vt., and then was successively stenographer and chief ticket clerk until 1897, when he became chief clerk to the general superintendent. In 1900 he was appointed traveling car agent of the Canada Atlantic Railway, with office at Ottawa, Ont., and in 1902 became sectary to the general manager of the same road. During 1905 and 1906 he served as chief clerk to the vice-president and general manager of the Grand Trunk Pacific at Montreal, Que. In 1907 he became assistant to vice-president and general manager and purchasing agent of the same road, with headquarters at Winnipeg, Man., which position he held at the time of his recent appointment as general purchasing agent of the Grand Trunk, as above noted.

G. W. Caye

Special Officers

R. C. Vandercook has been appointed manager of the public relations department of the Pere Marquette, with office at Detroit, Mich.

The title of chief special agent on the Atchison, Topeka & Santa Fe system, held by Emmett Gregg, T. O'Leary and Grant Hale, has been changed to superintendent of special service.

OBITUARY

P. J. Yeimbach, commercial agent for the Missouri Pacific-St. Louis, Iron Mountain & Southern at Hutchinson, Kans., died on January 8, of heart disease.

S. A. D. Forristall, superintendent of telegraph of the Boston & Maine at Boston, Mass., died on January 10, at his home in Boston at the age of 54.

Harry L. Moore, commercial agent of the Chicago, Indianapolis & Louisville, for the past 23 years at Minneapolis, Minn., died on December 23, at his home in Minneapolis.

George H. Heafford, formerly general passenger and ticket agent of the Chicago, Milwaukee & St. Paul, died at his home in Chicago, Ill., on January 6, at the age of 70. Mr. Heafford was in railway service from 1865 to October 15, 1900, when he resigned to engage in the insurance business.

Equipment and Supplies

LOCOMOTIVES

THE UNION PACIFIC will purchase 10 six-wheel switching locomotives.

THE SOUTHERN PACIFIC has issued inquiries for 20 Mikado type locomotives.

THE ILLINOIS NORTHERN has ordered one switching locomotive from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL was reported in last week's issue as having ordered 5 superheater Mallet type locomotives from the American Locomotive Company. These locomotives will be of the 0-8-8-0 type. They will have 26 and 40 by 28 in. cylinders, 51-in. driving wheels, and a total weight in working order of 466,000 lb.

THE DELAWARE, LACKAWANNA & WESTERN was reported in last week's issue as having ordered 7 Pacific type and 10 Mikado locomotives from the American Locomotive Company. The Pacific type locomotives will have 25 by 28 in. cylinders, 70 in. driving wheels and a total weight in working order of 291,000 lb. The Mikado locomotives will have 28 by 30 in. cylinders, 64-in. driving wheels, and a total weight in working order of 323,000 lb. All 17 locomotives will be equipped with superheaters.

THE INDIANA HARBOR BELT was reported in last week's issue as having ordered 20 Mikado and 10 eight-wheel switching locomotives from the American Locomotive Company. The Mikado locomotives will have 25 by 32 in. cylinders, 63-in. driving wheels, and a total weight in working order of 294,000 lb. The eight-wheel switching locomotives will have 25 by 30 in. cylinders, 58-in. driving wheels, and a total weight in working order of 240,000 lb. All these locomotives will be equipped with superheaters.

FREIGHT CARS

THE RUSSIAN GOVERNMENT is negotiating with the Pullman Company for 10,000 box cars.

THE ANACONDA COPPER COMPANY has ordered 100 hopper cars from the Pressed Steel Car Company.

THE FRENCH GOVERNMENT has ordered 4,000 freight cars from the National Steel Car Company, Hamilton, Ont.

THE BESSEMER & LAKE ERIE is reported to have ordered 2,000 ore cars from the Standard Steel Car Company. This item has not been confirmed.

THE DENVER & RIO GRANDE, reported in previous issues as being in the market for 1,000 box cars, has ordered these cars from the Pullman Company.

THE SOUTHERN PACIFIC has issued inquiries for about 4,000 freight cars, including approximately 2,000 box cars, 650 flat cars, 250 flat car bodies, 300 tank cars, 700 stock cars, 250 gondola cars and about 3 caboose cars.

THE UNION PACIFIC was reported in the issue of December 1 as having issued inquiries for 1,500 box and 500 stock cars, and as intending to make total purchases of 4,000 cars. It is now understood that the additional 2,000 cars will be refrigerator cars.

THE LEHIGH VALLEY has divided an order for 1,500 40 ft. steel underframe and steel end automobile cars among the following companies: Standard Steel Car Company, 500; Pullman Company, 500, and the American Car & Foundry Company, 500.

PASSENGER CARS

THE ERIE will buy 5 coaches and one baggage car.

THE SOUTHERN PACIFIC has issued inquiries for 10 baggage cars, 6 postal cars, 6 baggage and mail cars and 15 coaches.

THE CHESAPEAKE & OHIO, reported in last week's issue as having ordered 12 express cars, 6 coaches and 2 chair cars from the Pullman Company, ordered only the express cars and coaches. It remains in the market for 2 chair cars and also for 2 parlor cars.

IRON AND STEEL

THE GRAND TRUNK has ordered 20,000 tons of 90-lb. and 100-lb. rails from the Algoma Steel Corporation, Ltd.

THE CANADIAN PACIFIC has ordered 30,000 tons of 85-lb. rails from the Algoma Steel Corporation, Ltd. Of this order, 5,000 tons have already been rolled.

THE DULUTH, MISSABE & NORTHERN has ordered 469 tons of steel for the Lawrence Lake Viaduct at Bovey, Minn., from the American Bridge Company.

THE MISSOURI, KANSAS & TEXAS has ordered 513 tons of bridge steel from the American Bridge Company and 1,588 tons from the Wisconsin Bridge & Iron Company, the Federal Bridge Company and the Virginia Bridge & Iron Company.

THE CHICAGO, BURLINGTON & QUINCY has distributed orders for 2,129 tons of bridge material, as follows: Chicago Bridge & Iron Company, 1,213 tons; Milwaukee Bridge Company, 594 tons; Wisconsin Bridge & Iron Company, 124 tons; the Morava Construction Company, 114 tons, and the King Bridge Company, 80 tons.

MACHINERY AND TOOLS

THE SOUTHERN RAILWAY will receive bids up to January 17 for the following motor-driven machine tools: One two-wheel dry grinding machine, one plate furnace, one 60-in. radial drill press, one straightening roll to handle 5/16-in. flats, one bending and straightening machine, one 36-in. cold saw machine, one portable rivet furnace, two portable oil burning rivet forges, three portable torches, one horizontal punch, and two double head bolt cutters.

SIGNALING

THE TEXAS & PACIFIC, having used telephones in train despatching for the past year, with great satisfaction, has ordered from the Western Electric Company apparatus for the equipment of the line from Marshall to Fort Worth, 177 miles.

MISCELLANEOUS

THE WABASH RAILROAD is in the market for several hundred thousand feet of lumber and is asking prices on both fir and yellow pine.

TRACK SPECIALTIES

THE TOLEDO, ST. LOUIS & WESTERN is inquiring for prices on 6,000 rail joints, 60,000 tieplates, 700 kegs of bolts and 1,200 kegs of spikes.

THE RAILWAY WAR.—There seems to be no limit to the introduction of ingenious military devices for obtaining the advantages of railway transport in more or less unorthodox form; the latest to be installed is that adopted by the French army to carry water to the men in the trenches. For this purpose a short narrow-gage line is laid down where geographical and other circumstances permit, and the rolling stock consists of small wagons on which large water casks are mounted. Haulage is by electric or petrol locomotives. It goes without saying that conditions would not in every case permit of the construction of such a railway, which would also be a somewhat unnecessary luxury in districts possessing a water supply easy of access by the men in the trenches. But the "water railway," which is in some respects reminiscent of the system of delivering water to Australian ranch districts by means of railway tank wagons, has been found of the greatest value on certain structures, among which are the Duluth and Superior Bridge, sections of the French front.—*Railway Gazette, London.*

Supply Trade News

W. E. Ballantine, manager of the train lighting department of the Willard Storage Battery Company, Cleveland, Ohio, died of pneumonia on January 11.

The Track Specialties Company, New York, announces that from January 1, R. L. Mason will represent the company in the Pittsburgh district, with offices at 1501 Oliver building, Pittsburgh.

The Haskell & Barker Company has taken a charter under the laws of New York state, with a capital stock of $1,250,000. The incorporators were William E. Corey, Ambrose Monell and Frank A. Vanderlip.

B. J. Meyer, formerly sales manager of the General Brake Shoe & Supply Company, has been appointed special representative of the Great Western Smelting & Refining Company, with headquarters at Chicago, Ill.

The Kilby Locomotive & Machine Works, Anniston, Ala., announces that henceforth the name of the company will be the Kilby Car & Foundry Company. There will be no change in the management of the company.

J. Y. Sloan, Jr., and Joseph Davis, assistants to the sales manager of the Pullman Company, manufacturing department, have been appointed sales agents of the same company. Their headquarters will be at Chicago as heretofore.

The Keuffel & Esser Company, New York, has purchased the entire stock, furniture and fixtures, good will, trade marks, etc., of E. A. Soltmann, New York, who recently went into bankruptcy. The stock purchased was inventoried at more than $100,000.

Paul Mackall, district sales agent of the Bethlehem Steel Corporation at Chicago, has been appointed western sales representative of the company, with jurisdiction over territory west of Pittsburgh. He has been succeeded as district sales agent at Chicago by J. M. Price.

R. L. Mason, for fourteen years manager of the railroad department of Hubbard & Co., Pittsburgh, Pa., has severed his connections with that company effective January 1, to go into the railroad supply business on his own account with offices at 1501 Oliver building, Pittsburgh.

H. N. Turner, formerly eastern representative of the Kay & Ess Company, Dayton, Ohio, has been appointed sales manager of the company with headquarters at Dayton, and J. W. Wilson has been appointed eastern railway representative of the company, succeeding Mr. Turner.

The Harrison Safety Boiler Works, Philadelphia, Pa., announces that the company received a gold medal for the combined open feed water heater and hot water meter, known as the Cochrane Metering Heater, which it exhibited at the Panama-Pacific Exposition.

Richard L. Thomas, vice-president of B. M. Jones & Co., Inc., has been elected president of that company succeeding Benjamin M. Jones, who died a few weeks ago. Walter J. Klein, the treasurer will also become vice-president. Both have been associated with the directorate for many years and with the sales and office management of the company.

James M. Buick, second vice-president of the American Car & Foundry Company, will be elected first vice-president of the company, succeeding Edward F. Carry, who recently resigned to accept the position of president of the Haskell & Barker Car Company. Herbert W. Wolff, assistant to Mr. Buick, has been made vice-president in charge of the Chicago sales department.

The United Railway Mail Equipment Company has sent an announcement to the trade stating that it has entered the market with the Burr automatic and pneumatic system of exchanging mail from moving trains, which has been approved by the United States Post Office Department for use on the railways of the country. The company's offices are in the Transportation Building, Chicago.

The Coast Lumber Company, recently incorporated in South Dakota, has opened offices in the Henry building, Seattle, Wash. It will handle fir, cedar and other Pacific coast lumber products and will solicit business in railroad car and construction material. The officers are S. G. Runner, president, and R. M. Wilbur, treasurer, who is also president of the Bankers' Loan Company, Railway Exchange, Chicago.

The city of Akron, Ohio, has recently passed an annexation ordinance bringing into the city Goodyear Heights, established by the Goodyear Tire & Rubber Company for its employees about three years ago. The community has a population of about 1,000 and in addition to the usual conveniences such as paved streets, sewers, water, gas and electric lighting plants, etc., has a small park with tennis courts, baseball fields, a skating pond, etc.

Thomas Finigan, vice-president of Pierson, Roeding & Co., San Francisco, Cal., has resigned to become Pacific Coast manager of the American Brake Shoe & Foundry Company, with offices at 301 Call building, San Francisco, Cal. H. S. Whiting has been elected vice-president to succeed Mr. Finigan. As noted last week the company has discontinued its association with the Electric Storage Battery Company, Philadelphia. It has also ceased to be the agency of the R. D. Nuttall Company, the lines of which will henceforth be handled on the Pacific Coast by the Westinghouse Electric & Manufacturing Company.

The C. C. & E. P. Townsend Company, New Brighton, Pa., announces that beginning January 1, the company will be known as the Townsend Company. The organization has this year completed a century of business as manufacturers of rivets, nails, wire and wire products, and is believed to be the oldest wire mill in the country. It started business in 1816 as R. Townsend & Co., becoming in 1864 W. P. Townsend & Co., in 1894 C. C. & E. P. Townsend, and in 1905 C. C. & E. P. Townsend Company. The officers of the company are R. T. Townsend, president and general manager; J. M. Townsend, vice-president, and V. L. Bradford, secretary and treasurer.

W. Frank Carr was recently appointed Pacific northwest coast representative of the Chicago Railway Signal & Supply Company, Chicago, with headquarters in Seattle, Wash. Mr. Carr has had an extensive and varied experience in railway electrical and manufacturing work, covering a period of over thirty years. He was at one time a professor in the engineering department of the University of Minnesota and has served as general manager and chief engineer of many important street railway lines. He spent twelve years as chief engineer of the Falk Company, Milwaukee, Wis., and has been located on the Pacific coast for the last four years.

A new Chicago concern which has started business under favorable auspices is the Duntley Products Sales Company. It has been incorporated by a number of prominent western men, and has spacious headquarters in the Fisher building. Its field will be the railroads and other important industries. The company will manufacture and sell the Duntley electric cleaners and sweepers, paying particular attention to the apparatus for cleaning and disinfecting passenger coaches. Other mechanical and engineering devices to be manufactured and sold by this company will be announced later. The head of the company is Crawford A. Duntley, with the title of vice-president; he is the son of William O. Duntley, president of the Chicago Pneumatic Tool Company. The secretary-treasurer is William W. Bishop; sales manager, Reuben C. Hallett; manager of the railroad department, William F. Caspers, formerly with the Monarch Steel Castings Company, Detroit, Mich.

The Bailey Meter Company has been incorporated under the laws of Massachusetts, with offices at 141 Milk street, Boston, Mass., to manufacture and sell a complete line of recording meters and instruments for power plant and similar uses. These meters have been developed during the past six years in the mechanical engineering department of the Fuel Testing Company of Boston. E. G. Bailey will devote his entire time to the new company, but the Fuel Testing Company will continue its regular line of work under the personal direction of W. B. Calkins, who has been a partner with Mr. Bailey since the company's organization in 1909. The Bailey meters are adapted to measure steam, water, air and gases, under all conditions of pressure, temperature and capacity. They include orifice meters for all fluids in pipes; v-notch weir meters for open flow liquids; "The CO_2 Method of Steam and Water Measurement" for meter calibration and testing work; boiler meters showing steam output, rate of air

supply and condition of fuel bed; gas flow meters for fan and ventilating ducts; and radimeters for averaging all kinds of chart records.

J. E. Tesseyman, who recently assumed the duties of general manager of the Youngstown Steel Car Company, successor of the Youngstown Car & Manufacturing Co., as noted in the *Railway Age Gazette* of December 17, was formerly vice-president and general manager of the Ralston Steel Car Company. Mr. Tesseyman was born in Dayton, Ohio. After leaving high school in 1893, he entered the services of the Barney & Smith Car Company, and worked in the machine shop and drafting departments of that organization until 1900. He then went to the Pressed Steel Car Company, and served until 1906 as head of the order department, general storekeeper and head of the cost bureau, respectively. In that year he entered the employ of the Ralston Steel Car Company as general superintendent. After three years in that position he was made general manager, and later vice-president and general manager, which position he held until March, 1914.

J. E. Tesseyman

A syndicate headed by Joel S. Coffin, president, and Samuel G. Allen, vice-president, respectively, of the Franklin Railway Supply Company, New York, has acquired stock control of the Lima Locomotive Corporation, Lima, Ohio. The latter company was incorporated under the laws of Virginia, June 21, 1912, as a successor to the Lima Locomotive & Machine Company which, although it was incorporated in 1892, was carrying on a business established in 1872. The corporation is capitalized at $6,000,000, of which $4,000,000 is common and $2,000,000 7 per cent cumulative preferred stock. There are also outstanding $1,888,000 first mortgage 6 per cent 20-year gold bonds, due May 1, 1932. The plant of the company at Lima, Ohio, covers 23 acres of ground and has a capacity of from 800 to 1,000 locomotives a year.

W. S. Henry, principal assistant engineer of the General Railway Signal Company, has been appointed acting resident manager of the company's New York office, effective January 1. Mr. Henry's signal experience began in September, 1897, when he became a batteryman in the signal department of the Chicago & North Western. In May, 1900, he entered the employ of the Taylor Signal Company, Buffalo, N. Y. For a while he was engaged in electrical work, but he was later transferred to the construction forces as electrician, with headquarters at Chicago, and in September, 1903, was promoted to the position of superintendent of construction, with offices in New York. When, in 1904, the Taylor Signal Company and the Pneumatic Signal Company, then located at Rochester, merged into the General Railway Signal Company, Mr. Henry was transferred to the engineering department at Buffalo, and in that department he dealt with estimating, circuit design and in a limited way with apparatus design. From April to August, 1905, however, he was assistant signal engineer of the Lehigh Valley. When he returned to the signal company he was appointed assistant engineer on the engineering work of the New York Central electric zone signaling. About one year later he was transferred to New York as resident engineer for the General Railway Signal Company on the electric zone installation. On July 1, 1907, he returned to the engineering department as development engineer, with duties in connection with circuit and apparatus design. After serving a year and a half on this work, he became principal engineer, which position he leaves to take up his new duties. As acting resident manager, he will have charge of the entire territory east of Buffalo, Pittsburgh and the Ohio river.

W. S. Henry

Crawford A. Duntley, vice-president of the recently organized Duntley Products Sales Company, of Chicago, is a native of Chicago and has been a resident of the city all his life. After attending the Chicago public schools and graduating from the Armour Scientific Academy of Chicago, in 1910, he entered the class of 1914 at Cornell University in the mechanical engineering course. In his Junior year he transferred to the literary course and graduated with an A.B. degree in the spring of 1914. Shortly after leaving Cornell he entered the employ of the Chicago Pneumatic Tool Company in the Little Giant truck department. As vice-president of the Duntley Products Sales Company his office will be at 810 Fisher building, Chicago.

C. A. Duntley

Oliver C. Gayley, vice-president of the Pressed Steel Car Company, died at his home in New York City, Sunday, January 9. Mr. Gayley had been associated with the company since December, 1902, and its vice-president since January, 1910. He was born in West Nottingham, Cecil County, Md., April 9, 1860. In 1880 he entered the engineering department of the Pensylvania railroad and remained with that road for eight years. In 1888 he became one of the division engineers of the Philadelphia & Reading, but left railway service two years later to accept a position as general manager of the Kansas City Car & Wheel Company, Kansas City, Mo. He later became general agent of the Missouri Car & Foundry Company of St. Louis, from which position he resigned in April, 1893, to enter the service of the Safety Car Heating & Lighting Company, New York. In December, 1902, he became associated with the Pressed Steel Car Company as manager of sales, eastern district. In October, 1904, he was elected second vice-president, and in January, 1910, became vice-president. Mr. Gayley was also vice-president and a director of the Western Steel Car & Foundry Company, and a director of the Safety Car Heating & Lighting Company.

O. C. Gayley

Railway Construction

ALABAMA ROADS.—A contract has been given to J. W. Hicks, Fayette, Ala., for work on the first section, and to Gregory & Meador, Tuscaloosa, for work on the second section of a seven-mile lumber line in Alabama. The work will be mostly earth excavation and will involve handling about 30,000 cu. yd. A. E. Bell, president, and the Alabama Engineering Company, engineers, Tuscaloosa, Ala.

ARIZONA ROADS.—Application has been made to the Board of Supervisors of Mohave county, Ariz., for a franchise to build a railway from Kingman southwest to the mining town and district of Oatman, about 26 miles. Henry Lovin and Horace J. Pullen are said to be back of the project.

BIG SANDY & CUMBERLAND.—Work is now under way building an extension from Matney, Va., southwest to Grundy, about ten miles. No contracts for the work are to be let. It is expected that the extension will be open for operation to Grundy about May 1. The company now operates a line from Devon, W. Va., to Rife, Va., twenty-six miles.

CANADIAN NORTHERN, QUEBEC.—This company is building a line it is said, from Arundel, Que., to St. Remi, eleven miles. Track has already been laid on two miles from Arundel to Rouge river.

CANADIAN NORTHERN, ONTARIO.—The Dominion parliament is being asked to extend the time in which to build the following lines: From Toronto, Ont., via Hamilton and London, to Windsor, with a branch to St. Thomas and Sarnia; from the head of Lone Lake northwesterly to a junction with the Transcontinental east of Lake Nipigon.

CHARLESTON-DUNBAR TRACTION.—Plans have been made, it is said, to build a 20-mile line in West Virginia. The company already operates a seven-mile line to Dunbar Park. E. W. Alexander is secretary and general manager, Charleston, W. Va.

CHIRIQUI RAILROAD.—This company, which is building about 60 miles of railway in the Republic of Panama, completed work during 1915 on about 40 miles between Pedregal and Boquete. Work is now being carried out by R. W. Hebard & Co., Inc., New York, on the remaining 20 miles.

FLORIDA, ALABAMA & GULF.—Plans have been made by this company, it is said, to build about two miles of new line from Leonard Junction, Ala., to Horseshoe. The company now operates a line from Galliver, Fla., north to Falco, Ala., 25 miles. (August 6, p. 257.)

FLORIDA & ALABAMA.—The Bagdad Land & Lumber Company, Bagdad, Fla., is building an extension of the Florida & Alabama from Pinelevel, Fla., north to Bradley, Ala., about 15 miles. The maximum grade will be 2 per cent compensated, and the maximum curvature 3 degrees. The Florida & Alabama now operates 30 miles of railroad from Bagdad via Munson to Pinelevel. The principal commodities carried on the line are naval stores, logs and local freight.

GULF, MOBILE & NORTHERN.—Incorporated in Tennessee with $500,000 capital to build from a point on the southern boundary of Hardeman county north through Madison county, Tenn., via Jackson, or a point near that city. The incorporators include W. B. Williams, W. H. Borseje and H. L. Walker.

MAHONING & SHENANGO RAILWAY & LIGHT.—See Youngstown & Niles.

NASHVILLE-GALLATIN INTERURBAN.—Announcement has been made by this company, it is said, that a branch line will be built northwest to Springfield, Tenn., about 20 miles. This line is to be extended later north to Adairville, Ky., and to Russellville. The company now operates a line from Nashville, Tenn., northeast to Gallatin, 28 miles.

NEW YORK SUBWAYS.—The New York Public Service Commission First district has approved a modification of the contract with the Degnon Contracting Company for the construction of Section No. 5 of Routes Nos. 4 and 36, which is that part of the Broadway-Fourth avenue subway in Fifty-ninth and Sixtieth streets between Seventh avenue and the Queensboro bridge in the borough of Manhattan.

The commission also approved plans submitted by the Interborough Rapid Transit Company for the extension of the Second avenue elevated railroad in the borough of Manhattan across the Queensboro bridge to connect with the new rapid transit lines in the borough of Queens.

PENNSYLVANIA RAILROAD.—An extension of the Turtle Creek branch, from the Delmont Mine No. 1 of the Pittsburgh Coal Company of Pennsylvania, at White Valley, to a point east of Dunning, 1.70 miles, also a siding at White Valley 0.15 of a mile has been completed, and is now being operated as a part of the Pittsburgh division.

SAVANNAH & ATLANTA.—See Savannah & Northwestern.

SAVANNAH & NORTHWESTERN.—A contract has been let to Thomas Worthington, Birmingham, Ala., and construction is now under way building the Savannah & Atlanta from St. Clair, Ga., northwest to a point on the Georgia Railroad near Camak, about 35 miles. The work involves handling about 7,000 cu. yd. to the mile. The maximum grades will be 0.3 per cent south bound, and 0.5 per cent northbound. The maximum curvature will be 2 deg. (December 31, p. 1262.)

SCRANTON & BINGHAMTON TRACTION.—This company is building an extension from Scranton, Pa., north to the Pennsylvania-New York state line. Track has already been laid north to a point near Montrose. From this point north to Hallstead the work involves handling about 15,000 cu. yd. to the mile. The maximum grade will be 2 per cent. The company is carrying out the work with its own forces.

SOUTHEASTERN OHIO (ELECTRIC).—This company has been organized in Ohio, it is said, to build an extension of the Southeastern Ohio Railway, Light & Power Company's line from Crooksville, Ohio, to New Lexington, 10 miles. The company now operates a line between Zanesville and Crooksville. E. R. Meyer, Zanesville, is an incorporator.

TORONTO, NIAGARA & WESTERN.—The Dominion parliament is being asked to extend the time in which to build the following lines: From Toronto, Ontario, to Hamilton; from Hamilton to the International boundary near Grand Island, or Niagara Falls, Ont., and probably to a point in New York state, with branch lines from St. Catherines to Welland and from Hamilton, via Brantford, Woodstock, London and Chatham to Windsor.

YOUNGSTOWN & NILES (ELECTRIC).—Incorporated in Ohio, it is said, with $10,000 capital, to build a new line along the south side of the Mahoning river. It is understood that the line is a subsidiary of the Mahoning & Shenango Railway & Light Company.

RAILWAY STRUCTURES

BIRMINGHAM, ALA.—Engineers of the city of Birmingham have made plans for a concrete and steel viaduct to be built at Twenty-first street, in Birmingham. Drawings with estimated cost of the structure have been sent to the various railroads interested. Tentative plans have already been agreed upon by property owners abutting the viaduct.

BYRON, ILL.—The Chicago Great Western is constructing a water tank, about 45 ft. in height and 28 ft. 8 in. in diameter, with a capacity of 100,000 gal. Two oil engines of 25 h.p. are being installed to pump the water. The tank is of all steel construction and rests upon a concrete foundation. It will have a conical bottom and mud drum and a conical steel roof and framing. The Chicago Bridge & Iron Works has the contract, and it is estimated that the total cost of the water station and incidental improvements will reach about $5,000.

CHARLESTON, S. C.—The United States engineers at Charleston have approved plans of the Seaboard Air Line, it is said, for the construction of seven bridges between Charleston and Savannah, Ga., on the extension being built between these two places. The Broad river bridge will have an opening of 50 ft.; Combahee river and North Wimbee creek will have swing bridges of two 35 ft. openings and the others will be fixed bridges of smaller size.

EAST LIBERTY, PA.—Plans are being made by the Pennsylvania

Railroad for putting up a new freight house to be of brick construction 27 ft. by 368 ft.

INDIANAPOLIS, IND.—Work has been begun on a new brick freight house which is being built for the Pittsburgh, Cincinnati, Chicago & St. Louis and the Vandalia in Pennsylvania street. It will be a one-story structure with basement, 790 ft. long and 70 ft. wide. The basement and the ground floor will be constructed of concrete, the walls will be of brick and the roof will be tile supported by steel roof trusses. Some office room will be provided in a second story. The William P. Yungclaus Company, of Indianapolis, has the contract. It is estimated that the building will cost about $175,000. W. C. Cushing, chief engineer maintenance of way, Pennsylvania Lines West, southwest system.

NIAGARA FALLS, ONT.—The Dominion parliament is being asked to incorporate the Ontario Niagara Connecting Bridge Company to build a combined railway and highway bridge over the Niagara river. The proposed site will be at some point between the intersection of the Northerly boundary of Welland county with the Niagara river, and the intersection of a line running east and west parallel to such boundary line, distant 6,000 feet therefrom. A. Fraser, Niagara Falls, is solicitor for applicants.

PHILADELPHIA, PA.—The Pennsylvania Railroad has entered into an agreement with the officers of the city of Philadelphia coving the elimination of all the grade crossings on the Chestnut Hill branch. This work is in connection with the electrification of this branch. The agreement provides that the cost of both the construction and real estate damages shall be divided equally for Hortter street, Chelten avenue, Hartwell avenue, Highland avenue and Seminole avenue. The present Highland station will be abandoned and a new station will be built on the opposite side of the tracks. Contracts have been let as follows: To R. P. Bennis, Philadelphia, for grading work on Chelten avenue and Woodlawn street; Fred T. Buckius, Jr., Philadelphia, for grading St. Martin's and Gravers lane; E. J. Kerrick, Philadelphia, for grading Hortter street, and to the Peoples Brothers, Inc., Philadelphia, for moving and raising Highland station.

PITTSBURGH, PA.—A contract has been given by the Pittsburgh & Lake Erie to W. F. Trimble & Sons Company, Pittsburgh, for building a brick with steel frame office and freight warehouse at Smithfield street, Pittsburgh. The structure will be six stories high, 52 ft. wide by 92 ft. long, and will cost about $100,000.

PORTLAND, ORE.—The Southern Pacific is constructing a viaduct over its tracks at Holgate street for the city of Portland. The structure will consist of four 75-ft. girder spans resting on concrete abutments. The foundation work will be done by company forces, and the contract for the fabrication has been let to the American Bridge Company. The viaduct will be erected by the railroad. Estimated cost, $50,000. J. Q. Barlow, assistant chief engineer, Southern Pacific, 1116 Flood building, San Francisco, Cal.

PRESCOTT, ARIZ.—The Atchison, Topeka & Santa Fe has completed a seven-stall brick roundhouse here. (June 18, 1915, p. 1460.)

WEST ST. PAUL, MINN.—Work is under way on a frame ice house, 2,000 tons capacity, which is being built by John Jacobson, of Marshalltown, Iowa, for the Chicago Great Western. The structure will rest on a concrete foundation and when completed will cost about $6,000.

ASSAM RAILWAY EXTENSION.—An extension of railways in Assam has been projected which, under the present scheme, will ultimately mean the construction of some 776 miles of railroads, the existing Assam-Bengal Railway owning a little over 800 miles. Martin & Co., of Bengal, have obtained sanction to construct a meter-gage line from Chapramukh to Silghat, a distance of about 59 miles. This line is estimated to cost $766,665, of which $483,335 has been privately subscribed. A feature of the undertaking is the additional guarantee given by the Assam government, being a subsidy for a period of 10 years, sufficient to increase the rate of dividend to 4½ per cent per annum when the net earnings of the company are insufficient to admit of payment of a dividend at this rate.

Railway Financial News

ATLANTA, BIRMINGHAM & ATLANTIC.—The new company, the Atlanta, Birmingham & Atlantic Railway Company, has taken over the property of this road from the receivers. E. T. Lamb, receiver, is president of the new company. The property taken by the new company includes that formerly owned by the Atlanta, Birmingham & Atlantic Railroad Company and Alabama Terminal Railroad Company.

CANADIAN PACIFIC.—E. W. Beatty, vice-president and general counsel, has been elected a director, succeeding David McNicoll, deceased.

CINCINNATI, HAMILTON & DAYTON.—More than 80 per cent of the Cincinnati, Hamilton & Dayton general mortgage 5 per cent bonds have been deposited with the Guaranty Trust Company, New York, under the agreement to accept 70 and interest in cash for the bonds from the Baltimore & Ohio.

DULUTH, RAINY RIVER & WINNIPEG.—F. J. Lisman & Company, New York, are offering $2,00,0000 Duluth, Rainy River & Winnipeg first mortgage extended 5 per cent bonds due January 1, 1921, at 95¾, yielding 6 per cent interest on the investment. These bonds are a first mortgage on 92 miles of line in northeastern Minnesota. The bonds are guaranteed principal and interest by the Canadian Northern.

INTERNATIONAL & GREAT NORTHERN.—A correspondent writes from Houston, Tex.: Colonel Cecil Lyon, coreceiver of the International & Great Northern, in discussing the affairs of that property said:

"While the reorganization of the International & Great Northern is not in sight, naturally, plans to this end have been discussed from time to time. In talking over the matter with parties interested in the property I have been asked to make recommendations as to what would be necessary to take the road out of the receivership. I have always made my recommendations based on the essential idea that in the reorganization plans there must be provided not less than $800,000 annually to pay the prospective deficit and interest charges for two years. By that time the Great War will have probably have been ended and the situation in Mexico materially improved. When the fact is considered that the indebtedness of the International & Great Northern in stocks and bonds is only $27,300 per mile, or less than one-half that of most of the other railroads of the state, and that we are suffering financial distress it must be apparent that some of the other roads with their large volume of watered stocks must be bad off, indeed. An increase of freight rates is absolutely necessary in order to lift the financially embarrassed and distressed railroads out of the slough into which they have fallen."

NASHVILLE, CHATTANOOGA & ST. LOUIS.—This company has declared a semi-annual dividend of 3 per cent, payable February 2, to stock of record, January 22. The two previous semi-annual dividends were 2½ per cent, respectively.

NEW YORK, NEW HAVEN & HARTFORD.—Morgan Harjes & Company, Paris, France, are offering to buy at $945 per $1,000 bond, New York, New Haven & Hartford 4 per cent debenture bonds which were sold in France in 1907.

SOUTHERN PACIFIC.—The annual meeting is to be held April 5 at Anchorage, Ky. Proxies are asked for J. Kruttschnitt, J. P. Blair and A. P. Humphrey. Stockholders will be asked to authorize the purchase of the property of the Beaverton & Willsburg, the capital stock of which is now owned by the Southern Pacific.

ST. LOUIS & SAN FRANCISCO.—The Oklahoma Corporation Commission has filed a protest with the Missouri Public Service Commission against the reorganization plan of the St. Louis & San Francisco which the Missouri commission has been asked to approve. Among other things the Oklahoma commission claims that under the reorganization plan the capitalization of the St. Louis & San Francisco will be very much higher than the total cost of the property, which the Oklahoma commission estimates to have been $30,000 a mile.